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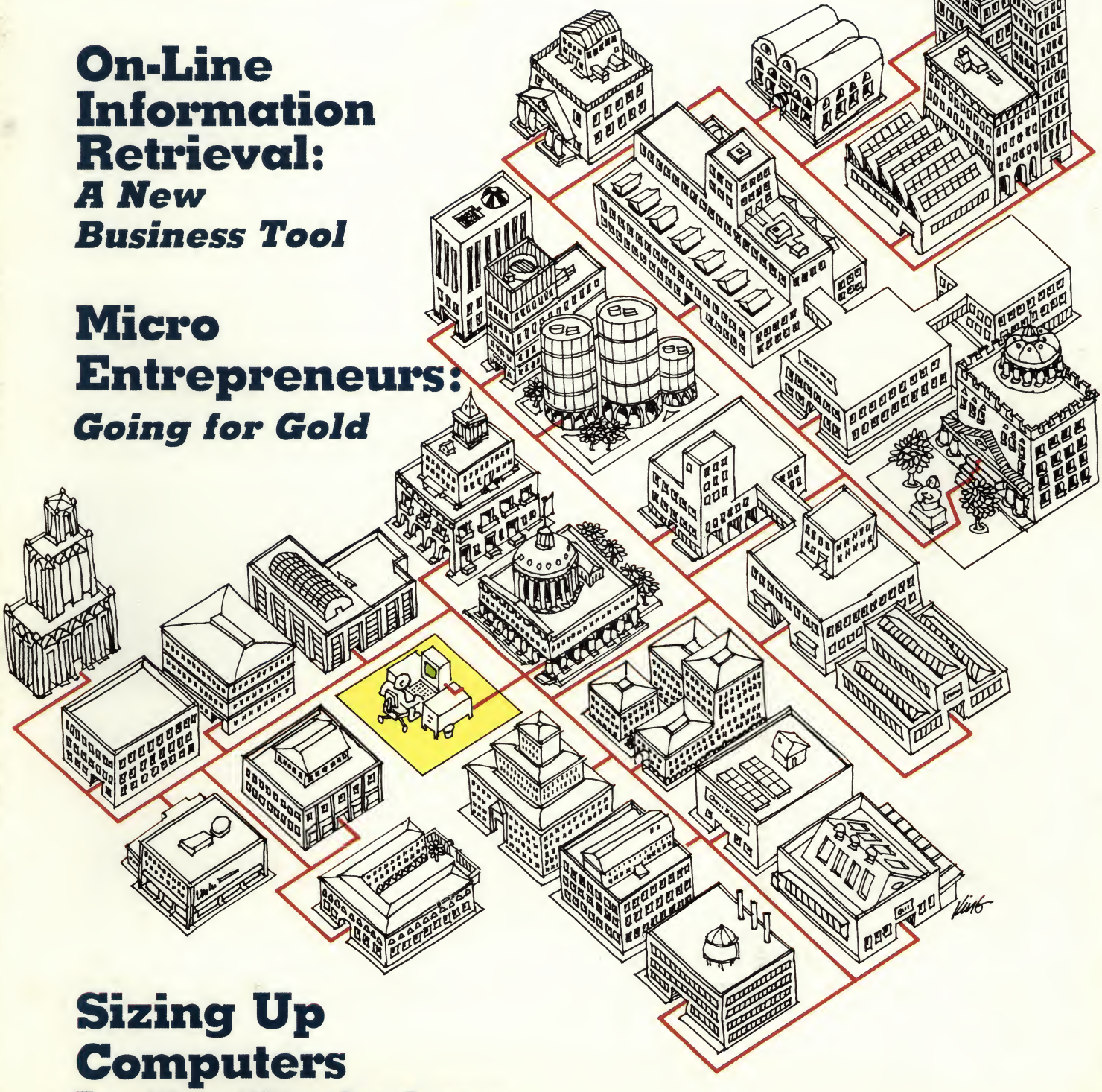
TODAY

THE VIDEOTEX/COMPUTER MAGAZINE

On-Line Information Retrieval:
A New Business Tool

Micro Entrepreneurs:
Going for Gold



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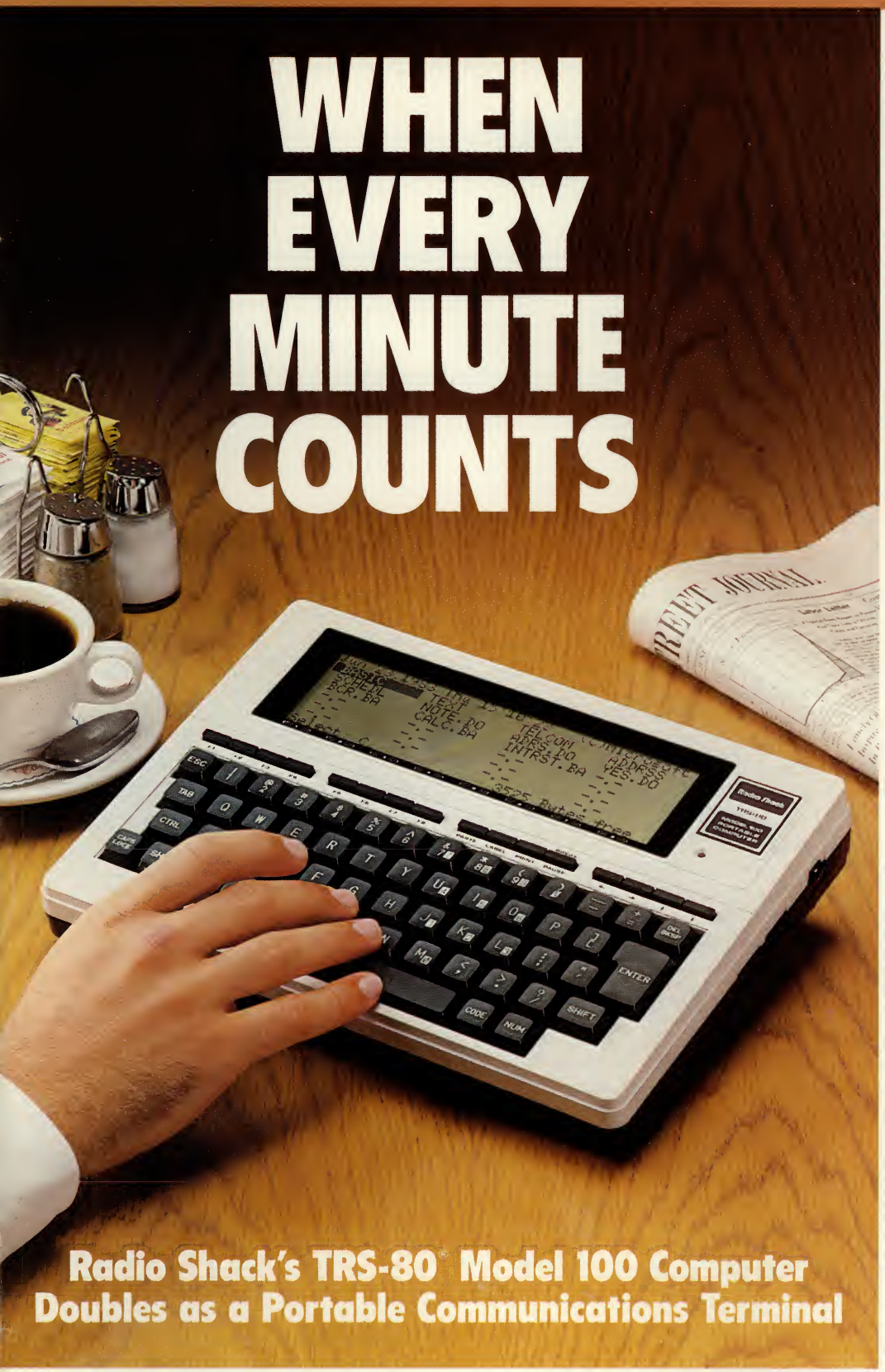

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TODAY

THE VIDEOTEX\COMPUTER MAGAZINE

BUSINESS/PROFESSIONAL

14 **On-Line Information Retrieval: A New Business Tool**
How many drywall contractors are in Topeka? What is the U.S. Market for medical razors? How do you weld bismuth? Questions such as these confound the business community every day, but new on-line tools offer a global information resource of unprecedented scope and timeliness.

22 **Entrepreneur of the '80s: Going for the Gold**
There's a certain "gold rush" fever associated with videotex and microcomputing. Ads tell computer owners they can strike it rich selling their programs. Others dream they can make a fortune selling newsletters and special services on line. Some make it, but many others find that there's a long period of darkness before that "overnight success."

26 **Legal Problems of a Home Business**
Thinking of picking up your computer and joining the gold rush? Read this article before you do!

30 **Computers in the Workplace: Master or Slave?**
Are microcomputers and networks tools for creativity that free workers from the mundane so that they may conceive the magnificent? Or are they tedious taskmasters that numb the minds of bored employees?

REVIEWS

34 **Hardware**
The Morrow MD3 Micro Decision desktop computer
Ampex D125 video display terminal

37 **Software**
CMS Market Counselor from Capital Management Systems Inc.
Report Manager from Datamension Corp.

38 **Books**
Learning With Logo — BYTE/McGraw-Hill
Learning to Use the IBM Personal Computer — QED Information Sciences
Cablemania: The Cable Television Sourcebook — Prentice-Hall

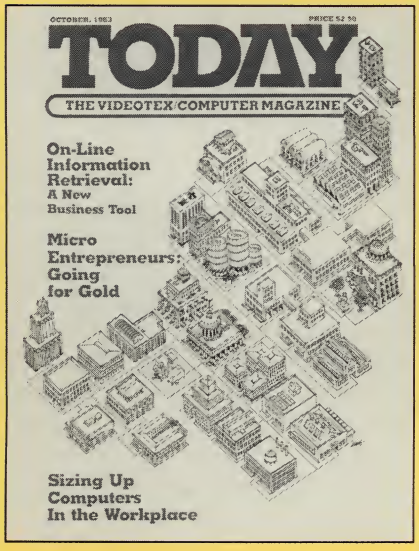
DEPARTMENTS

4 **Letters**

9 **Dear Reader**

10 **Monitor**

47 **Online** With Charles Bowen


TODAY
THE VIDEOTEX/COMPUTER MAGAZINE
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Micro Entrepreneurs: Going for Gold
Sizing Up Computers In the Workplace

Cover
"Micropolis"
TODAY examines the role of the Information Age in the business community. Illustration by King Associates.

Clean up the computer clutter.

For less than $250 you can make your investment in yourself pay off!

MICRO-OFFICE WORK CENTER

Chances are you have spent a couple thousand dollars on setting up a computer system that gets a lot of your work done. But sometimes it gets to be work to work at it.

I know that when I have to move two program manuals and a pencil holder to boot up the disk drive, it is work. When there is an unlabeled floppy (that I am going to identify some day) on top of the monitor and the business checkbook is on top of the printer . . . and I will remember (I hope) before the next "report" comes through . . . that is work.

I found the annoyance of my own "computer clutter" was even worse than the extra work the disorder created. And that is when I started looking for some practical furniture for my computer set up. Since I had already spent a lot of money on the system itself, I was really dismayed when I found out how much it would cost to get a decent-looking desk or even a data table for my equipment. $400 . . . $500 . . . even more for a sleasy unit that looked like junk! In fact, it was junk! And it took a long time for me to find something that was really worth the money . . . and more.

A lot of my working day is spent with my computer, and I will bet a lot of your time is too. So I figure a "home" for my system—a housing that is good looking as well as efficient to work at—will pay off two ways:

1. Less work: an efficient and orderly layout will save me time and energy.
2. Personal satisfaction: good quality furnishings look better; they just plain feel better to work at too.

So imagine how good I felt to find the "Micro-Office" Work Center! These are fine pieces of computer system furniture that make my office-at-home as pleasant a place to work as it ought to be. And the biggest and best surprise is the low, low price for such good quality.

Here is what you get—all for only $249.50 plus shipping.

- Mar-resistant work surface. Your choice of oak or walnut grained. Work surface height is adjustable to your keyboard, your chair, your height.
- Two shelves plus work surface extender. Both shelves tilt to lock in position so that monitor faces you—in a position that does away with screen glare squinting and neck craning forever. Retainer bar keeps equipment from sliding off shelf. Snap-in bookends hold reference manuals and programs.
- Strong, sturdy and steady. All-steel welded frame construction is concealed by top-quality wood grain surfaces with finished trim. Adjustable floor levelers included. The work center is really a piece of fine furniture.
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Order 48-inch unit in walnut, #2KPO-945, or in oak, #2KPO-947. Only $249.50 for each unit plus $20.00 shipping charge. On orders for two or more units at the same time, shipping charge applies to only the first unit ordered. Shipment made UPS, so we cannot ship to post office box. Illinois residents please add $15 per unit sales tax. Please allow 10 extra days for personal checks to clear. Sorry—at these special offer prices we cannot ship c.o.d. or bill direct.

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Letters

Oversight

Carole Houze Gerber ought to think a little more carefully when she writes that "prior to the 15th century when Johann Gutenberg introduced moveable type, the techniques for recording information . . . had remained unchanged for centuries." ("Electronic Publishing: On-Line Knowledge of the World" August) Among the minor developments she is overlooking is the invention of paper.

Paul Starr
Associate Professor
Department of Sociology
Harvard University
Cambridge, Mass.

MC-10

I just read Fred Blechman's review on the Radio Shack MC-10 Micro Color computer. In the review he said a user can change the screen color but as additional lines are entered, the color returns to green.

MC-10 owners might be interested to know that they can get a red background with black lettters by typing in:
POKE 32768,64 ENTER

Evan T. Williams II
Carmichaels, Pa.

American Journalism

In the article "American Journalism in the '80s" by Byron Scott (August), the author quotes a recent survey regarding the involvement of newspapers in the dissemination of electronic news as having been a joint study by the American Newspaper Publishers Association and the National Association of Broadcasters. In fact, the survey was done by the ANPA and the Newspaper Advertising Bureau.

Kathleen Criner
Director, Telecommunications Affairs
ANPA
Washington, D.C.

WordStar

The article "Networking with WordStar" (June 1983) was an excellent primer on how to use WordStar for networking. We have discovered, though, an easier way to delete the hard carriage returns after each line of text. Rather than performing a global search and replace with an item-by-item verification for each line to prevent merging paragraphs accidentally, we recommend the following:

1. Place a character that is not used in your document (such as @) where ever you want hard carriage returns.
2. Then use CTRL-QA to activate a global search and replace operation. The string to find is CTRL-N and the replacement is a single space. Select the option g and n. An item-by-item verification will not take place.
3. Perform another global search and replace operation. The character to find is the character marking the places you want hard carriage returns (@). The replacement is CTRL-N. Again select the options g and n.

This simple two-step method allows you to stretch and get a cup of coffee as the global search zips through your document. It sure beats being asked hundreds of times for verification!

Linda C. Jones, R.N., Ph.D.
Phillip A. Jones, M.D.
New Orleans, La.

Electronic Bounce Back

Electronic Bounce Back is TODAY magazine's answer to the traditional reader service card. When you want more information about an advertisement in TODAY, simply use your CompuServe ID and access Electronic Bounce Back.

Instructions/Tips

Step 1
To enter the Electronic Bounce Back program, choose item 11, User Information, or GO EBB.

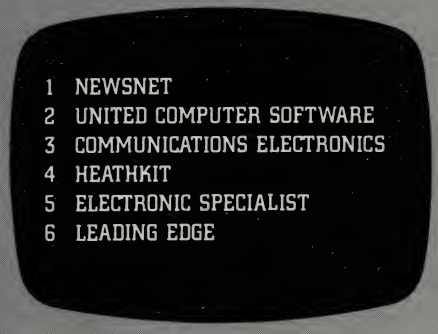
Step 2
After the introductory information, you will be prompted for your name and mailing address.

Step 3
A menu of available issues will then be displayed.

Example:

After entering the issue of your choice, a list of advertisers will appear.

Example:



Step 4
After choosing an advertiser, you will be shown the list of following options:

1 PRINT PRODUCT DESCRIPTION
2 REQUEST MORE INFORMATION
3 RETURN TO LIST OF ADS
4 SELECT ANOTHER MONTH
5 EXIT ELECTRONIC BOUNCE BACK

Step 5a
Selection 1 displays brief product descriptions.

Step 5b
Selection 2 sends your name, address and ID number to the selected advertiser. You will also be presented with a Comment option. You will be given three lines to make your request to the advertiser.

Step 6
After completing your request, the option menu (step 4) will be redisplayed.

Electronic Bounce Back puts you into direct contact with our advertisers.

When you respond to an ad in TODAY Magazine, you're "talking" directly to the advertiser. This means an end to the weeks of delay it takes for an ordinary reader service card to reach an advertiser (not to mention the additional time lapse for an advertiser to answer your inquiry once it is received).

EBB not only lets you respond to an ad with the usual name and address information, but it also allows you to ask for specific information, leave additional comments or in some cases even order a product. The advertiser in turn can reply, if so desired, through our electronic mail system, Email™.

TODAY is the first magazine to develop an "electronic" reader service and take advantage of the 2-way communications capabilities available through the use of videotex technology.

Electronic Bounce Back is easy to use. Just GO-EBB and follow the prompts. EBB will allow you to review an index of advertisers or go directly to the ordering section. Users of EBB will be able to request information from present advertisers in each issue of TODAY as well as from advertisers in past issues.

So GO-EBB and give it a try. We've cut out the middle man so CompuServe customers and advertisers can communicate directly with each other. This means a faster response to your inquiries and an added convenience for TODAY readers.

TODAY

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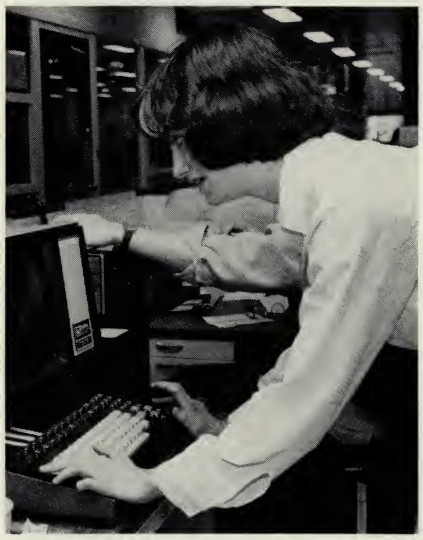
(614) 457-8600

Letters

Handy Journalist

I have just finished reading your article, "A day at AP Viewdata" (August) and must say that I found it to be most interesting and informative. However, I would like to make one comment on the photograph of Cindy Cannoll on page 22. It is easy for me to see why they hired her for a job with such a grueling schedule. Anyone who has three hands must be able to type on a computer terminal extremely fast!

Tom Delany
Parkersburg, W. Va.



Clean Slate

I was quite shocked to read the review of my program, the Clean Slate word processor in the August issue of TODAY. It was a bad review.

Many statements made by the authors are simply untrue, particularly the remark that Clean Slate is short on features. If the authors had examined the documentation carefully, they would have found that Clean Slate boasts a command feature list more substantial than any other word processor available for the Radio Shack Models I, III and IV (as shown in a comparison chart of word processors in the April issue of Personal Computing).

What bothered me the most, however, was the lack of reporting on the single subsystem of Clean Slate that would be of most use to network users: the integrated communications software. I use this element of the program exclusively in my interaction with CompuServe and numerous other timesharing systems. The Clean Slate user is blessed with an extremely simple upload-download capability that makes other people's tales of cross-computer communication seem like horror stories indeed.

Henry Melton
Austin, Tex.

Electronic Publishing

Being a user and advocate of electronic publishing for some years now (including writing a videotex column for the Alaska Journal of Commerce), I was very pleased with your interesting issue on electronic publishing (August).

While there has been a lot of industrial flurry about electronic publishing, a lot of what passes as futuristic speculation is often nothing more than common Madison Avenue hype.

This rhetoric centers around the prediction that electronics is about to replace paper-based communications systems. While I don't begrudge the advertising and sales teams the opportunity to promote their products, much of what they say about the coming information age simply is not true and may be even harmful when it comes to planning for the information age.

If present trends are any indication of paper use, for example, the coming age will make much higher demands on the tree supply than now. It doesn't take a lot of brains to realize that there are some things that computers just can't replace, and two of them are books and newspapers.

The articles on electronic publishing gave the mistaken impression that the on-line databases now available have all the referenced literature in place somewhere online. It should have been made clear that most of them function for the purpose of searching literature not providing it. If a librarian wants to find out where to find something, a computerized database can be most helpful. But for the actual text, one has to have recourse to a paper-and-print product — usually to be found on a shelf somewhere.

Even at CompuServe and The Source, the most use (and income) comes not from providing information but communication services, especially the special interest groups bulletin boards.

At this stage of development we have to admit that the printed information capabilities of computers are only derivative, that is, they can only imitate or enhance what books, journals, periodicals, and libraries provide much more efficiently and abundantly. New publishing standards and techniques will have to be developed before electronic publishing becomes feasible.

Another problem, besides the one of storage vs. consumption, is that of accessibility. Let's face it, a CRT-based monitor is a pretty crummy way of reading anything. It offers too-small a window on a text of any significance.

A moderately sized pocket book takes up to nine 5-inch floppy disks on my system, at a cost of some $10 in disks (not to mention the $5,000 piece of equipment necessary to "read" them). Now, which makes more sense, the pocket book — which I can carry anywhere — or the disks?

If electronic publishing will have any future that is significantly different than what we have now, we will have to find an economical alternative to the cathode ray tube as a medium of display. Invented as a way of looking into electronic devices, they were never designed to function as a medium for language as was the printed page. For that purpose, they are as primitive as mechanical typewriters.

When it comes to the subject of electronic publishing, it helps to talk sense and realize the limitations of digital technology. It is very good for some things like communications and storing and searching data. It is very bad for other things like storing and reproducing literature. Maybe we should keep this distinction clear.

William H. DuBay
Anchorage, Alaska

Please address your letters to CompuServe electronic mail, ID number 70003,1372 or to: Editor, TODAY magazine, 5000 Arlington Centre Blvd., PO Box 20212, Columbus, OH 43220. TODAY reserves the right to edit letters for length, content and clarity.

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8" DSDD Soft Sector (1024 B/S, 8 Sectors)	F147	2.99
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5¼" SSDD 16 Hard Sector w/Hub Ring	M53A	1.79
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Dear Reader

Not long ago we received a rather lengthy and vitriolic letter to the editor. That wasn't so unusual except for the fact that this particular letter came from a first-time TODAY reader who had some working knowledge of computers but assented to unfamiliarity with videotex and networking.

The reader apparently felt a mixture of shock and indignation at the prospect of electronic publishing — the featured subject in August. "Who are you," wrote the reader, "to tell me that I'll get my news on a computer terminal or that I won't be able to go to the library?"

Although we made no such claims (and in fact took pains to state exactly the opposite in this column) the fact remains that the very presentation of the subject aroused enough concern and anxiety to cause a casual, first-time reader to respond so strongly.

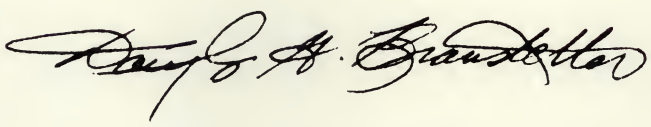
This month's topic, the use of computers and videotex in the business world — causes the same kind of fears to ripple through the business community. From executives to middle management to clerical workers, introduction of the new technology causes a full range of reactions — most of them at least mildly negative. Many of these negative feelings stem from fears caused by a lack of understanding and, of all things, *information* about computer networks videotex services and on-line databases.

Many businesspeople — from executives in large corporations to the one-man operatives — are not aware of the vast amounts of time and money-saving information and services at their fingertips in the on-line world. This month's cover feature "On-Line Information Retrieval: A New Business Tool" is but a sample of the nearly endless possibilities and potential in the effective use of on-line databases.

There are problems and pitfalls as well. Meet four entrepreneurs who have attempted to cash in on the videotex "gold rush" with varying levels of success (page 22); and discover the legal problems you might encounter if you're planning to make a run for the gold yourself ("Legal Problems of a Home Business," page 26).

So, whether you're new to networking or a pro in search of ever more efficient ways to use computer communications, you'll find valuable information and instruction in the pages of TODAY. We'll continue to provide in-depth coverage and progressively more advanced articles on many aspects of the information industry. Beginning next month, we'll also publish a regular column for those of you who are new to networking. The beginner's column will provide information to help novices chart the large, confusing networking maze.

Finally, if you're just becoming acquainted with the wonders of this "Information Age," don't become discouraged too quickly. Keep reading and learning and searching and overcoming all the little anxieties that can add up to real fear. Soon, you'll find yourself in that little yellow square on the cover of the magazine, with all of Micropolis at your beck and call.

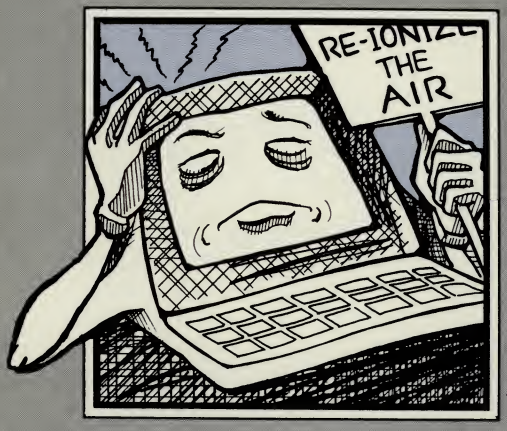


Douglas G. Branstetter
Editor

VODS: HELP IS IONS AWAY

Are video display terminals hazardous to users' health?

No, says the National Research Council, which recently released a report based on a two-year survey of VDT research. The blurred vision, tired eyes, muscular aches and stress experienced by some VDT operators result from other factors — some as simple as desks of the wrong height — the report states.



Illustrated Alaskan Moose

Yes, says Dr. Charles Wallach, president of the International Bio-Environmental Foundation in Bethesda, Md., who asserts that only VDTs with direct-view cathode-ray tubes (CRTs) put users at risk. Video Operator's Distress Syndrome (VODS) — that amorphous list of complaints some users report — occurs, says Wallach, under the following conditions: frequent daily use, continuous use for more than two hours at a time, the operator's face is within 18 inches of the display surface, there is little or no cross-ventilation, and there is no conductive shield over the face of the CRT.

The CRT terminals, reports Wallach, have a high positive voltage, or electrostatic charge on the face of the screen which attracts the negative ions out of the near airspace. At the same time, he says, the screen's voltage repels all the positive ions beyond the operator's breathing range which eliminates the natural ion balance in the air. Without the proper balance between these negative and positive electrically charged atoms — which are biologically important components of fresh air — VODS-sensitive individuals may experience discomfort.

"Theoretically," he adds, "these problems also exist with ordinary TV sets and video games, but usually the viewers are far enough away from the screen that the normal currents of room air carry enough ions into the air they breathe."

Wallach cites some of the typical VODS symptoms resulting from "ion depletion" as including one or two — but never all — of the following: headache, nausea, loss of appetite, repiratory distress, hypersensitivity to cigarette smoke or other air pollutants, heightened stress, unusual irritability or moodiness, shortened attention span, reduced productivity, and reddening, itch or rash on the face or eyes.

The solution to VODS, according to Wallach, is re-ionizing the air breathed by the operator, eliminating the electrostatic charge on the CRT tube by covering it with a grounded, conductive screen — or both. Because some of the equipment available to generate the needed negative ions may create static that interferes with microprocessor or computer elements, Wallach contends that a bipolar ion generator should be used. The bipolar generator keeps the environment both ion-rich and static-free by providing sufficient quantities of both positive and negative ions.

Wallach readily admits that his position on the VODS issue is not a universal one and blames the delay in linking ion depletion with lack of research by funding agencies. "We need to develop a large body of statistical evidence to justify federal research funding," declares Wallach, who has 10 years experience in ion research. "I urge those experiencing VODS to try the ionization method, and then report their results to the National Institute for Occupational Safety and Health in Cincinnati and the Office of Medical Devices at the U.S. Food and Drug Administration."

For more information, contact Dr. Charles Wallach, Box 994, Silver Springs, MD 20910; or call 301/585-8881.

— Carole Houze Gerber

FORD MOTOR IN COMPUTERLAND

Ford Motor Co. has found it sometimes has to take a back seat when it comes to dealing with the computer world.

"With annual sales of more than $37 billion, Ford traditionally has enjoyed considerable clout with automotive suppliers," Thomas Page, Ford vice president, told a group at a business seminar last June in Dearborn, Mich.

"However, when we moved into electronics, we made a surprising discovery. To chip suppliers, we were small potatoes."

Speaking at a seminar sponsored by the Business-Higher Education Forum called "The Rational Revolution in U.S. Industry," Page said: "We could be discussing a contract for several million dollars worth of chips, but if somebody like Atari called with a proposal for a variation on *Pac-Man*, the supplier probably would say to us, 'Sorry, we will have to talk to you later. Atari is calling.' "

Page said Ford found the situation intolerable and sought a solution, but found that "the bottleneck affecting our access to supplies of special-purpose chips is a very scarce human resource. There are only about 2,000 qualified chip designers in the world — approximately 1,200 in this country and 400 each in Europe and Japan."

To solve the problem, Ford hired 10 of these designers and set up a small company called Ford Microelectronics in Colorado Springs, Colo.

Page noted that the "grand old patriarch" of the company is in his 30s and all the others are in their 20s.

"I sometimes marvel at the irony of a situation in which 10 very bright young people — some barely out of their teens — can have such a large impact on the future of our company."

— Charles Bowen

RISE OF THE INTERMEDIARY

The recent emergence of on-line information retrieval services, such as Lockheed's DIALOG and SDC's ORBIT, has spawned a new breed of entrepreneur. Bridging the technical gap between commercial databases and end users, these *information brokers* are carving out a necessary (and profitable) niche in the information business.

Demand for "on-line intermediaries" is increasing rapidly. On-line information retrieval systems are complex, rapidly changing, and somewhat intimidating to the inexperienced user; nevertheless, they are becoming ever more essential to almost every type of business as the only efficient means of tracking the world's prodigious output of specialized literature. This has created an interesting problem: A growing number of people are starting to realize that they need to use databases, yet they are reluctant to take on the learning curve that is required to do so.

Enter the information broker. Trained in the fine points of on-line searching and conversant with a wide range of subject areas, these quintessential generalists will find out — for a price — just about anything you want to know. Intermediaries have researched subjects as diverse as the tastes of cocktail waitresses, the viability of nitinol heat engines, the molecular structure of a paint sample, and the marketing of kerosene heaters in Scotland. This sort of flexibility would not be possible were it not for the databases themselves, which now contain, according to some estimates, references to roughly 95 percent of all the world's literature published in the last 10-12 years.

The information brokerage business is a growing and healthy one, but it has its share of problems. One of the most frustrating ones is trying to explain to the public just what, exactly, information brokers can offer. Explanations of the capabilities offered by services such as DIALOG are often met with incredulity, and most business people have the conviction that they are already keeping up with their fields quite well.

Anji Brenner, an information broker in Minneapolis, doesn't seem to have that problem. "People call me with their information needs," she said, "I don't have to try to convince them anymore." A former librarian, Brenner is quite familiar with the "head-in-the-sand" attitude many people have when it comes to information. But her acceptance by the business community has changed much of that; now she finds that a much greater problem is simply keeping up with the demand for her services.

The rise of the intermediary is evidence that the information industry is maturing. Originally catering only to academic, library, and research clientele, on-line services are now reaching out to the business community at large. The difference is dramatic, since only rarely does this new class of information-consumer have the expertise to access the services directly. Stockbrokers and real-estate brokers evolved long ago for similar reasons; now the information broker has appeared as an essential part of the emerging information society.

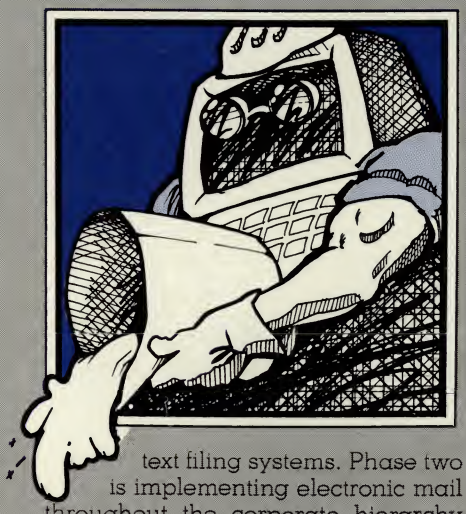
— Steven K. Roberts

FORGING PRODUCTIVITY AT BETHLEHEM STEEL

With production at only 30 percent of capacity, ailing Bethlehem Steel is looking to automation and employee involvement to raise productivity and morale.

According to a recent case study of Bethlehem by the American Productivity Center for a Steelcase report on "White Collar Productivity: The National Challenge," the complexity of the steel industry has made the rapid movement of vast amounts of information of critical importance. A paper-flow study showed that each day 10,000 pieces of paper were moving through Bethlehem's sales department from seven district offices. Eliminating paper snarls and delays through automation would help boost productivity, company officials believed. Bethlehem executives admit, however, that the move toward automation involves more than harnessing the enormous flow of information: They also must reduce labor costs, which have increased 400 percent since 1968.

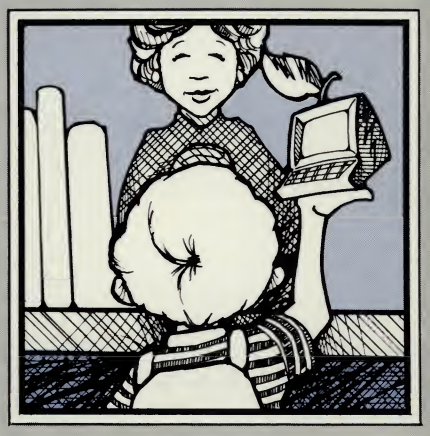
The $2-million, three-phase automation project, called PROS (Productivity through Office Systems) was directed first at the company's 400-person sales force and clerical support personnel. All parts of the automation effort are expected to be fully integrated throughout the company by 1985. Phase one included installation of secretarial work stations compatible with corporate data processing systems and implementation of electronic



text filing systems. Phase two is implementing electronic mail throughout the corporate hierarchy and merging computerized data with text. Phase three will build upon improving manager and professional productivity through computer graphics, decision support systems, executive work stations, advanced voice systems and teleconferencing capabilities. Regular meetings with employees have kept them involved and allowed for both negative and positive feedback about PROS.

Since its implementation in 1982, a staff reduction of 31 has been achieved. A systems development team evaluating the PROS project estimates that Bethlehem's quality of service to customers has been enhanced 50 percent and response time reduced by 80 percent since the automation effort began. Electronic mail on the system has reached monthly averages of 50,000 pages. PROS project monitors say this, combined with word processing, has produced "significant gains in efficiency."

AN APPLE FOR THE TEACHER



Bringing an apple to your teacher is not a new idea. But when a computer company makes a gift of 9,000 Apple Computers to an equal number of schools — that's new!

Apple Computer Inc.'s "Kids Can't Wait" program started off with a bang last month when most of California's 9,250 elementary and secondary schools first switched on their new personal computer systems. Taking advantage of a new state law, Apple offered a complete system to any school making a request.

Once the offer was made, few school systems failed to take advantage of Apple's largess. By mid-August most of the state's schools had sent applications, and more were arriving at the company's headquarters each day.

Each system includes the Apple IIe computer introduced in January, one disk drive, and the company's new green-screen monitor. Educational extras were also supplied, including Apple Logo software, brochures from the International Council on Computer Education, and a coupon book for discounts on other educational software and materials. Some of the coupons are good for the full price of additional software, according to Apple spokesman Stephen Schreier.

The "Kids Can't Wait" program is being supported by dealerships as well. Over 140 dealers will be providing a free orientation program to help students and educators learn how to use the equipment.

Under California law Apple can claim up to 25 percent of the fair market value of the $21-million giveaway in tax credits. The new law, which took effect in January, allows such credits to any business donating computer equipment to elementary and secondary schools. A similar measure failed to get through the United States Senate earlier this year.

"This isn't a free lunch for us, though," Schreier says. "We have to pay for the computers, software, and training, not to mention the amount of time we've invested in this. Even with the tax credits, the program is going to cost Apple over one million dollars."

— Alex Krislov

OLD MCDONALD NEEDS A MODEM

A new national videotex system that aims to provide farmers with around the clock market and weather information will soon be available from Continental Telephone. The service, called AgriStar, will be a joint venture between Continental, an independent telephone equipment manufacturer that currently serves mostly rural areas, and AgriData Resources Inc., an electronic information producer.

"Farmers will need a home computer to get at the information," says Jack O'Grady, marketer of AgriData products. "Systems can either be rented from Continental Telephone for about $30 a month or users can supply their own equipment." The system will provide up-to-the-minute weather, news, markets and other business and financial information.

Richard Weening, chief executive officer for AgriData, claims the service is a "first" in the independent telephone industry as well as in the agriculture and electronic services industries. "We think our service will fill a vital information gap. Farming is a high-pressure business these days, and farmers can no longer wait a day or two to obtain their information from traditional media sources," he says.

Continental Telephone currently provides farmers with two-way radiotelephones and security and energy management systems. More than 2 million customers in 37 states take some form of service from the company. Weening notes that the number of farmers utilizing data processing equipment is growing, and that within three years, 15 to 20 percent of the larger farming operations will be using data processing services.

COMMUNITY MEMORY PROJECT

Many towns have community newspapers, community golf courses, and community swimming pools, but San Fransisco is on the verge of becoming the first place with its own community memory. The Community Memory Project, a non-profit corporation, plans to place dozens of coin-operated terminals in various public places throughout the city. For 25 cents, users

will be able to access a bulletin board system that reflects the thoughts and feelings of bay area residents.

Lee Felsenstein, designer of the SOL and Osborne 1 computers, is the man behind the project. Felsenstein hopes that the public terminals will create a kind of interactive small town newspaper. "We see this as a new and very exciting concept," says Felenstein. "The service will include want ads, lost and found notices, opinions, and local news, all contributed directly by the public rather than by a group of writers and editors."

The price tag to get off the ground? About $100,000, with equipment and telephone line charges making up most of the costs. Felenstein hopes that advertising and users' quarters will recoup most of the expenses.

— John Edwards

TELESPORTS: BETTING ON THE BETTORS

Telesports, a company based in Dallas, Texas, has begun an information service to serve one of the largest multi-billion dollar businesses in the United States: sports gambling.

For $500 per month the company will equip home or office with a microwave receiving dish, control box, and dot-matrix printer. Through the equipment, Telesport's computer will provide the subscriber with gambling information — lots of gambling information.

Available anywhere in the United States, the satellite service provides users with written analyses of upcoming games, statistics, injury reports, current weather conditions, and the Vegas line on major league baseball games and college and pro football and basketball contests.

"We're like a research department you'd find on Wall Street," says Richard Jaffe, Telesports president. "A Wall Street firm analyzes stocks for those who gamble in the market. But nobody has ever used the same sophistication to analyze the odds for those who invest their money in sports gambling, which is a $150 billion business."

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King Associates

ON-LINE INFORMATION RETRIEVAL: A New Business Tool

by Steven K. Roberts

Not long ago, a couple of basement experimenters with an exciting new product idea approached an investor in Columbus, Ohio. "We've figured out a way," they said, "to completely revolutionize the car stereo industry."

The investor, though unfamiliar with high technology, has heard enough of these classic success stories to be intrigued. His eyes lit up. "How?"

The inventors explained their concept for a digital audio disk machine that would use a laser to play prerecorded media, very much like the videodisks that were appearing at the time (mid-1982). Four hours of music could be stored on a small and rugged disk, they claimed, and the sound reproduction would be of unprecedented quality. The units could even be made programmable for selection of desired musical "cuts," eliminating one of the traditional complaints about magnetic tape.

Fascinated, the investor called a few of his friends. He discovered that the potential market was huge and saw no reason why the idea had to be limited to car stereos. Here was his chance to get in on the ground floor of a big one! They began negotiating.

Later, as he was discussing the matter with his attorney, the investor was advised to have the technology independently researched before risking $50-75,000 in the proposed startup. The attorney knew of a small on-line searching firm that might be able to help.

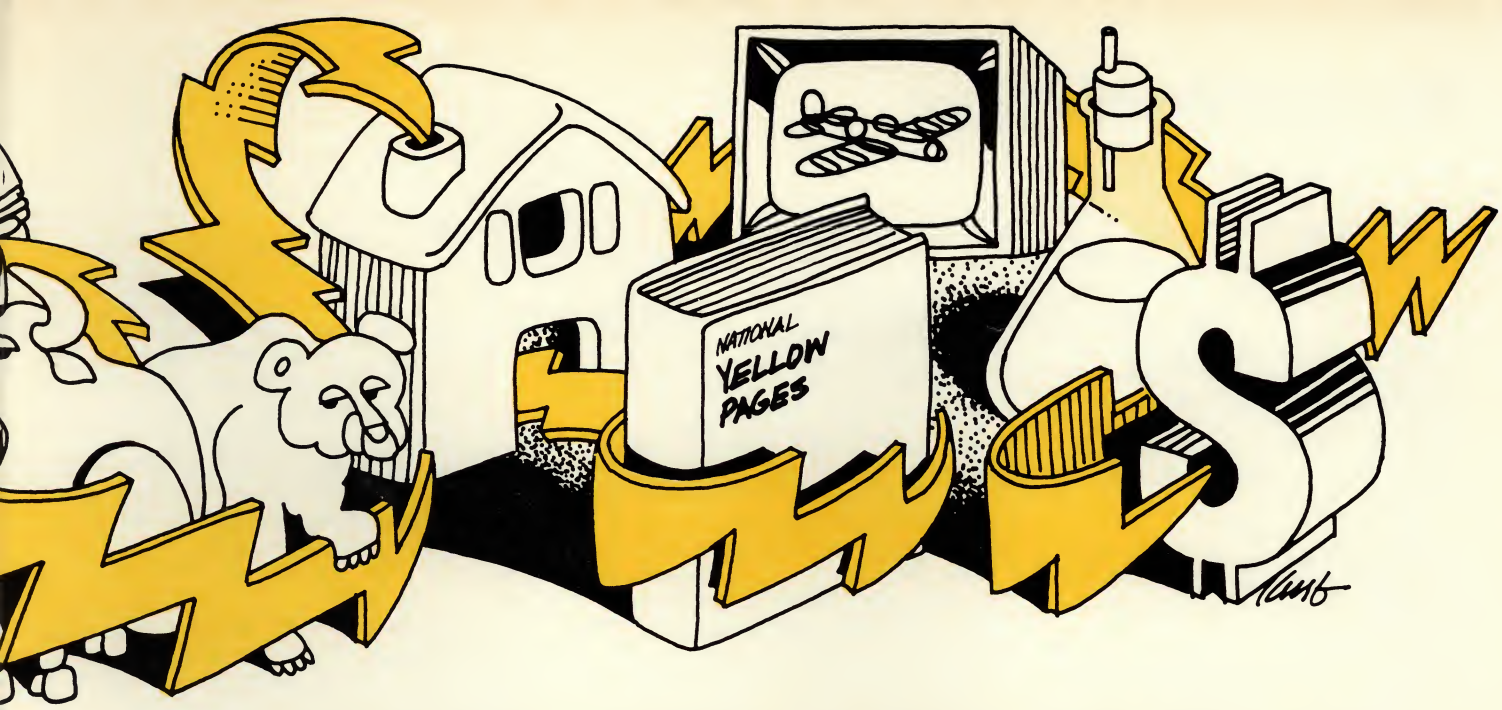
"Sure, why not?" The investor and his newfound associates appeared at the door of the Information Institute — and during the following hour suddenly found themselves face-to-face with reality.

They discovered that many companies (among them Philips, Mitsubishi, and Sony) had already announced working prototypes of digital audio disk players that had been under development — and in the news — for four or five years. In less than 30 minutes of on-line searching via Lockheed's DIALOG system, the dismayed trio was treated to a succession of technical article abstracts, news stories, conference papers, and patents having to do with their "hot new idea." The investor was billed for $32.60 in on-line time plus a consulting fee; the designers walked away crestfallen, and it was business as usual for the information broker.

This sort of thing goes on daily. Have you ever scooped rotten leaves out of your gutters, for example, and dreamed up an expandable-arm gutter cleaner that could simplify the job and make you a fortune? Forget it. There are over 20 patents on variations of that idea already.

Have you ever moved in the wrong direction, discarded a good idea, settled for a "shotgun" marketing approach, or failed to accomplish a critical business objective — simply because you were unable to locate a few particularly critical facts? If so, you're not alone: there's hardly a company in existence that could honestly deny it.

The business world abounds with unanswered questions. How many typesetters are in Massachusetts? What is the U.S. market for medical razors? Are there any lawsuits pending against Tandon Corporation? Is there a correlation between chiropractic cervical manipulation and stroke? What are the latest rulings by the Commissioner of Patents and Trademarks affecting prior use of an unregistered logo? Is there a book about organo-tin compounds that explains barnacle-proofing? How has Chrysler been advertising lately? Is there a trade association for maraschino cherry producers? What does it take to weld bismuth? Are nitinol heat engines viable? Where can one find



an expert in robot vision systems? Should you lease or buy a punch press? Is your product marketable?

Traditionally, such questions have been a pain (to put it gently). Many of them still are, but every one is directly approachable through on-line searching.

How? This article will acquaint you with a technology so powerful that you might even want to change the way you do business . . . before your competition does.

A new business tool

Our subject is on-line information retrieval. Before going any further, it would be wise to agree upon a preliminary definition of that term.

The words "on line" have been applied to a lot of computer-related phenomena, including everything from communication with timesharing services to the current condition of a computer terminal. None of those traditional meanings adequately express the kinds of capabilities we will be discussing.

We will be talking instead about a new business resource of staggering significance: an "information utility" that can give you access to more collected human knowledge than any library in the world. You've been hearing about the "information explosion" for years, but only recently has it become practical enough to be truly relevant to the individual.

Kinds of information

It has become common knowledge in recent years that one of the powerful trends affecting the American business community is an unmistakable shift from an industrial to an information economy. This has manifested itself in many ways: the personal computer explosion, the effect that *Megatrends* author John Naisbitt called the "collapse of the information float," the relocation of the workforce away from manufacturing, and more. All of it affects your business in a variety of ways.

When we talk about business information, two broad categories come to mind. First, there's the "internal" information associated with your company: financial records, payroll data, word processing files, production reporting, and so on. Some of this may reside outside your physical premises in a timesharing system, but it is nevertheless your information — and definitely not for public consumption.

The second kind of information that affects your business concerns the rest of the world: the latest publications about robotics, recent legislation on leaseback arrangements, what your competition is up to, and so on. Without access to this, you operate in a vacuum and risk unpleasant surprises from your market or your competition.

The traditional "ear to the ground" has involved careful scrutiny of everything from trade journals to the rumor mill. It has never really been possible (without substantial effort and expense) to track industry activity in a timely and accurate fashion until relatively recently.

The information that interests us here is almost entirely of this second variety. We won't be discussing ways to get extra mileage out of your accounting system or build your own in-house databases of corporate information. Instead we will be giving you the tools necessary to tap a resource that has grown within a decade from obscure academic roots into a $2-billion-plus industry. Your "ear to the ground" can now be exquisitely sensitive, global in scope, and remarkably affordable.

Information: Where it comes from

Imagine, if you will, an organization of many people with various specialties, each sitting at a computer terminal. All day, every day, they work through thousands of magazines and journals, keying bibliographic references and abstracts for every article into the system. On a regular basis, these records are integrated into an expanding computer resident database of similar information — perhaps already consisting of well over a million items going back 10 to 15 years.

Imagine further that this database is housed in a computer system that has been equipped with the software to search through it very efficiently, allowing someone to request, for example, "all articles since 1975 that mention both Subchapter S corporations and profit-sharing plans." Or, perhaps, "all articles in TODAY Magazine that have something to do with French videotex systems."

When such requests can be made easily, and if the results can be had in a few seconds, then this stored database of bibliographic references and abstracts becomes a powerful research tool. No longer is it necessary to go to the library and painstakingly scan the table of contents or annual index of every magazine (a process that is not only notably inefficient but also incapable of yielding good results). Suppose that the search for information about profit-sharing plans in Subchapter S corporations yields 44 articles, and that one of the more interesting ones is entitled, "New Tax Legislation Closes Loophole." Any manual search of titles that picks that up is a

very careful one indeed.

Now suppose that this imagined database is one of a thousand or so, and that some of the others cover such diverse sources as:

- The National Library of Medicine
- All U.S. patents since 1950
- The Congressional Record
- Commerce Business Daily
- Various directories of manufacturers
- 10,000 reports on all SEC filing corporations
- Who's Who
- Economic and marketing forecasts
- The national Yellow Pages

and hundreds of other collections of information totaling over 100-million records. Imagine them all in the same system, readily accessible by phone from your office, and you have a reasonable image of on-line information retrieval.

The implications of this capability for the business community are profound. Some of the sample questions in the introduction would be almost unapproachable without either an on-line terminal or a huge research budget.

The implications

The opening scenario in which the investor saved himself a bundle by exposing the naivete of the audio disk "inventors" is not fiction. During the on-line session, some 2,600 technical journals abstracted in the INSPEC database were scanned all the way back to 1969, as were U.S. patents and other sources of information.

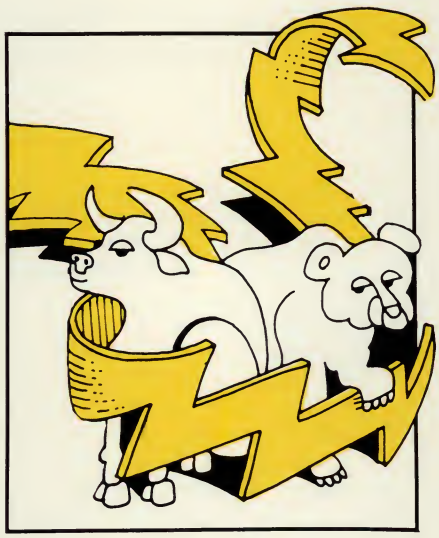
Clearly, this kind of capability implies a remarkable resource for the business community. Actual execution of the INSPEC search, including printout of promising "hits," took a little over seven minutes. The cost?

$10.38	connect time
.73	Telenet communications
3.00	typing 12 records
$14.11	Total

That's not bad. Compare it with any other kind of business research — keeping in mind human time, transportation, and overall effectiveness — and you will see why the on-line phenomenon is causing a stir.

Of course, it hasn't been much of a stir as far as the world at large is concerned, because the information industry has traditionally been one of those "incestuous," academically flavored subcultures. It has been growing in sophistication at a remarkable rate, but has lacked good public relations. Publications have been mostly internal, and the conferences, though spirited, have only recently started attracting outside business and industry.

Yet the on-line world has spawned a set of well debugged resources that have staggering market potential. As one information industry executive noted recently, "You can assume that more than 95 percent of all information published in the last 12 to 15 years is accessible online." Now that it has



"come out of the closet," online is proving to be indispensable — and the implications for those who ignore it are not pleasant.

Let's look at some of the reasons why the field is suddenly growing so rapidly:

Scope. We have already hinted at the sheer quantities of information to be found in on-line databases: Nearly two million records on agriculture. Over a million conference papers. Over a million in the Department of Energy file. Over 10-million records in the Electronic Yellow Pages. Over two million in the Funk & Scott index of companies. Four and a half million in just one of the many scientific files.

This adds up to a wealth of multidisplinary information that is readily available to anyone with a terminal — and it is updated daily.

Interactiveness. Much of the effectiveness of on-line searching is directly attributable to the dynamic and interactive nature of the system. In the Old Days, one had to operate in a batch mode, wherein requests for information were submitted, run by the system operator (often overnight), and answered many hours later. This was frustrating not only because of the time delay, but also because much of the art of good research comes from the ability to continually refine one's inquiry based upon intermediate results.

You could, for example, find over 2,500 articles on equipment leasing in the ABI/INFORM database. But this is far too much information for the question that inspired the search, so you can restrict the choices by date, language, type of leased equipment, and even article slant. If you are interested in the lease/purchase trade-offs in a hospital's acquisition of an X-ray machine, for example, you can quickly restrict the choices to a single article:

81004686
Buying Diagnostic Imaging Equipment: Points to Ponder, Pitfalls to Avoid
Robb, Walter L.
Hospital Materiel Mgmt Qtrly v2n3
PP: 31-37 Feb 1981 ISSN: 0192-2262
JRNL CODE: HMM
DOC TYPE: Journal Paper LANGUAGE: English
AVAILABILITY: ABI/INFORM

In the past, hospital radiologists have enjoyed almost complete authority for selecting diagnostic imaging equipment because this equipment has been considered too complex and specialized for the normal purchasing routine. However, in the last few years, as a direct result of increasing pressures from government and consumer agencies to control health care costs, hospitals are now more likely to handle capital equipment acquisition. To participate effectively in the decision making for this type of purchase, there are certain things that a materiel manager must know. Diagnostic imaging equipment may be classified into 4 categories:

1. X-ray, 2. computerized axial tomography, 3. nuclear, and 4. ultrasound.

The simplest way to acquire capital equipment is the straight purchase in which the manufacturer agrees to deliver and install a system at a fixed price. Managers need to consider preparation of a room, delivery and installation, and clarification of pur-

chase terms. Leases, warranties, and equipment service are other matters that materiel managers must analyze in the purchase of diagnostic imaging equipment.

DESCRIPTORS: Hospitals; Medical; Equipment; Purchasing; Equipment acquisition planning; Materials management; Leasing; Warranties; Services

CLASSIFICATION CODES: 8320 (CN=Health care industry); 5300 (CN=Production management); 7500 (CN=Product planning & development)

Speed. Swiftness of information retrieval is a major boon in a business context where questions are seldom the result of idle curiosity. It is possible to be on the phone with a potential corporate client and quietly call forth on your CRT screen his latest balance sheets and income statements, pending litigation, news about the company, a description of its products, plant information, recent acquisitions, names and salaries of officers, and so on. This can be very disquieting to the person on the other end of the line, subtly shifting the balance of a negotiation.

Cost. On-line searching seems expensive at first glance. Idle perusal of current database catalogs will reveal hourly connect time figures ranging from $35 to over $300 an hour. Searching chemical patents can cost you as much as $5 per minute — although the average database runs only a little over $1 per minute.

But you can get a lot done in a short time. It is doubtful that even an expert manual researcher in the most complete library in the world could have found all those articles and audio disk patents — and certainly not in less than half an hour!

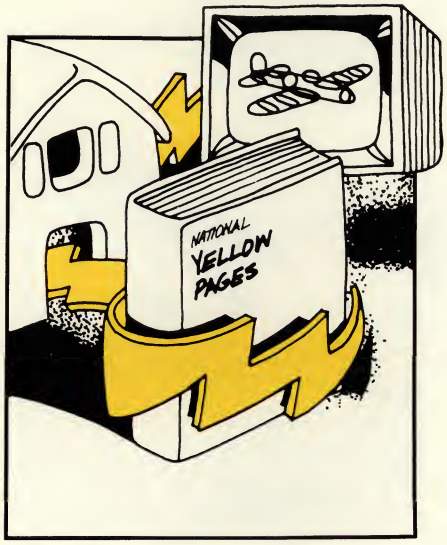
Extra Features. There are a number of interesting things you can do to extend the system's usefulness beyond "straight" searching. One of these deserves particular mention — the SDI service (Selective Dissemination of Information) offered by both DIALOG and ORBIT.

Suppose you are in the toothpaste business and are concerned with ongoing work in amorphous precipated siliceous pigments. (They make great clear toothpaste abrasives.)

You would certainly kick off your research with substantial on-line time, but it might become too expensive if you signed on every week to check for new patents or publications in the field.

No problem. Execute the search once, but instead of simply logging off the system, type END/SDI (if you are on DIALOG). Henceforth, you will automatically receive a monthly mailing containing abstracts of the latest information that meets the criteria of your search. The cost is minimal, and it keeps you up-to-date in a way that no other kind of information resource can.

Capabilities such as these suggest



that the long promised "Information Revolution" is becoming enough of a reality to take seriously. It is no longer necessary to be a computer wizard to become constructively involved in system use, although in all fairness, it must be admitted that the available services do require the development of some expertise before they can be used effectively. It is for this reason that database "intermediaries" have sprung up all over the country to give you the unmistakable business advantages of on-line use without having to pay for a learning curve.

But that learning curve is not particularly long or steep, at least for the average business' requirements, and there is enough information available to help you take off on your own if you see no need to support the overhead of a consultant. Take your pick.

All that knowledge . . .

This talk about huge storehouses of readily-accessible information calls to mind the attitude with which many people still approach computers. "Have you got anything in there on me?" "Can I ask it something?" "Gosh, how does it know?"

The fact is, of course, that it doesn't know. It is tempting when dealing with computers that contain vast amounts of human knowledge to expect a modicum of human wit, but this is unfortunately not the case. When you type in a search strategy with the intent of extracting a desired piece of knowledge, you will be taken literally. An example will demonstrate this:

One of my first experiences with the DIALOG system took place during the research phase of an article about on-line searching. Armed with a password and amazed by what I had already seen, I decided to have a look at the U.S. patent files. Being of a somewhat lascivious frame of mind, I inquired about sex-related inventions by simply searching for the word "sex." There were hundreds, of course. Trembling with anticipation, I ordered the first one to be typed . . .

It was a method for inducing the early flowering of young deciduous trees.

As you learn on-line searching technique, it becomes apparent that much of your success depends upon constant awareness of the fact that the machine is not intelligent. It won't automatically provide plural forms, overlook misspellings, give you articles about GE when you ask for General Electric, look for "paraffin" if you are trying to find "kerosene" in England, or understand that Steven K. Roberts is the same person as Steven K Roberts. It can be annoying. All that knowledge — and so little sense.

The information industry

From difficult and obscure beginnings in the late 1960s, there has evolved a complex and fiercely competitive industry. The annual National On-line Meeting this year attracted some 3,000 registrants and hosted over 100 exhibitors — each actively purveying databases, on-line services, private file support, consulting, and more. Let's look at the classes of information service and the entities that have appeared to market and support them.

There are four major categories of on-line information vendors:

Database Supermarkets. Typified by DIALOG, ORBIT, and BRS, these systems offer dozens, sometimes hundreds, of different databases. These are perhaps the most visible entities in the on-line world because of their diversity and size.

Specialized Services. These systems, such as Mead Data Central and Data Resources Inc., host their own files rather than those from a variety of producers. Many offer unique high-quality services unavailable elsewhere, such as Dunsprint from Dun & Bradstreet.

Timesharing Services. These would not even be mentioned here but for the fact that they overlap the on-line industry in many places. A number of companies that have traditionally been in the business of marketing computer time to business customers now offer a number of database services as well.

Personal and Videotex Services. These are a relatively recent addition to the on-line world. With less sophisticated search capabilities but a much wider range of services, these systems are significantly less expensive and address a broader market — yet they overlap the "hard core" database services in many areas.

These four classes of on-line information resources represent the logical divisions within the industry (the major types of "product lines," if you will), but they do not, alone, tell the whole story. As in any industry, there are manufacturers, wholesalers, retailers, consultants, trade organizations, and various classes of end-users.

Database producers are the original publishers of the information that is intended for marketing via an on-line system. One of the premier general business bibliographic databases, for example, is ABI/INFORM. Although you access this on a "supermarket" system such as DIALOG, the database is produced by Data Courier Inc. of Louisville, Ky. Other databases are simply machine readable versions of printed publications. Database producers may be thought of as the manufacturers.

On-line vendors are the systems with which you actually interact — whether they are supermarkets, such as DIALOG, or specialized services, such as the International Monetary Fund database. These services can be loosely compared to wholesalers in the traditional marketing chain.

Intermediaries are something of a cross between retailers and consultants, and are becoming an increasingly significant part of the on-line industry. One of the options that you have as a consumer of information is the use of a trained intermediary to do the searching for you. In this category we might include document delivery vendors who will locate and provide copies of the original documents discovered during an on-line search.

End users, of course, are the ultimate consumers of the information. Not much of the foregoing would be significant without a market, and it is the rapidly growing population of end users that provides it.

The on-line industry is young and still suffers from many of the standardization and philosophical arguments that affect other new businesses. One issue not likely to be so easily resolved is the cost of searching. For a variety of reasons, the traditional method of charging for information — hourly connect time — is becoming less and less useful.

What price information?

If you ever want to get a spirited conversation going, just wander into a large library and start talking about how patrons should be charged for on-line searching. Perhaps because libraries are traditionally free, this has become a major issue. In 1977, in fact, the American Library Association asserted that "the charging of fees and levies for information services, including those services utilizing the latest information technology, is discriminatory in publicly supported institutions providing library and information services."

While this may not be a critical issue to the average business user of on-line services, it is indicative of the seriousness with which this new technology is being received among the traditional purveyors of information. Libraries are, in effect, being asked to subsidize the high costs of on-line searching if they wish to offer the best possible service to patrons.

Many openly defy this policy, of course, and have begun adopting alternative approaches. Some split the costs between library and patron, others have established flat fees based on the cost of an average search, and still others offer a limited amount of free on-line time and then pass through all vendor charges after that. The ones staying with subsidized on-line services have begun to notice that they are losing money at an alarming rate: Not only are vendor charges regularly increasing, but free searching encourages sloppy techniques and allows inefficient methods to proliferate.

Outside the library, the question of free on-line searching seldom arises. But the cost of information is every bit as difficult an issue in the business world.

One of the reasons for this is that people are generally accustomed to making only a single payment for a printed volume of information — a book — which may be used for years and passed around without further cost. This renders $1/minute information retrieval costs a bit startling at first glance.

It turns out, however, that the efficiency of on-line searching coupled with the human cost of manual alternatives renders on-line charges quite reasonable for most applications. But suppose you need frequent access to the same database? A directory, for example, such as *Books in Print*, which would otherwise take the form of a set of bound volumes? This is available on-line for $65/hour, which might seem a questionable alternative to the printed version until you consider the host of extra searching features.

This discrepancy between traditional and new information costs has led to some interesting problems. In the case of the directory, there is nothing to stop you from doing a very general but well-tailored search once, storing all the results on disk in your own computer. With easily-available database software, you can subsequently search this to your heart's content without any additional charges, perhaps signing on to the big system once a month to update your copy of the file.

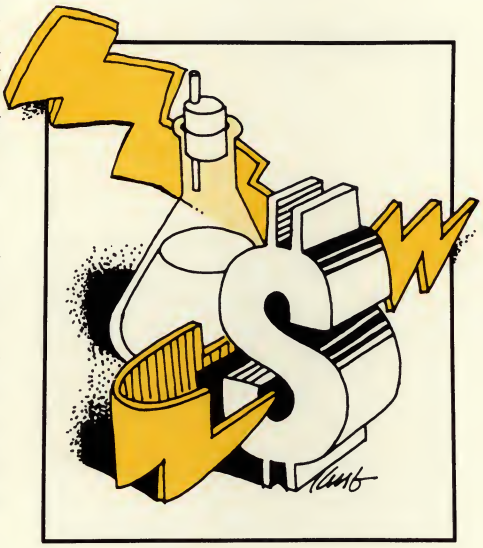
Database producers look unkindly upon such copyright violations, but are apparently powerless to do anything about it. This is a situation comparable to that of software piracy that has surfaced in the personal computer world — there is ample economic incentive to cheat, and the chances of getting caught are slim (see "Database Downloading," August TODAY, pages 27-31).

Additionally, on-line charges in systems such as DIALOG are primarily based on connect time. If you buy a 1200 baud modem to replace your 300 baud unit, you have improved your communication speed by a factor of four and substantially cut your searching costs. A local microcomputer can slash them further by retransmitting previously prepared search strategies in a fraction of the time it would take you to key them in online.

None of this is particularly pleasing to the on-line vendors, who have moved out of academia into the business world and are correspondingly more attentive to the bottom line. Ideally they would like to charge users up front for the privilege of using their system (still at a stiff hourly rate, of course), thus recouping production costs immediately and acquiring tangible data about the size of their user population. Some systems — notably the more specialized ones such as DRI's econometric databases — manage to get away with this, charging front-end subscription fees of $20,000 and up.

But users prefer the "pay as you go" approach, although the straight connect time basis is becoming undesirable from even their standpoint. The problem here is that the more users a system has, the slower it gets. It is, in fact, contrary to my own best interests to write about the field: Every time someone else gets enthusiastic and signs on with a database service, my average searching costs increase slightly! The vendors try to control this with ever-faster computers and communications processors, but system behavior at peak times is still noticeably sluggish.

The net effect is a trend away from straight connect-time charging toward a scheme that is based more upon the actual amount of information delivered. This will likely evolve into a basic charge for the time spent on the system, plus a fee based upon the number of records or abstracts actually displayed or printed.



Whatever happens, you can expect considerable flux in the coming years; this industry, though already sophisticated and immensely useful, is still suffering growing pains.

The future

It is entertaining in any new and fast-growing technology to speculate about the future. Where is the information industry going?

In general, we can observe that the systems will become more responsive as problems of user overloading are solved, and that more data will continue to become available online every month. Further, it is safe to predict that there will be more full text databases appearing — those that provide not only a bibliographic record and abstract of an article, but also the article itself. Mead Data Central's Nexis (news) and Lexis (legal) databases have always been this way, and others will surely follow as storage costs continue to decrease.

The technological changes are perhaps the most obvious. Information handling systems are continuing to develop at the same dizzying rate that has characterized the last decade, and this will affect on-line information retrieval in a number of satisfying ways.

First, as noted a moment ago, we can expect ongoing increases in the amount of data available. With the average annual 30 percent decrease in the per-bit cost of mass storage, it is only reasonable to assume that more information sources will be brought online.

Second, we can expect an extremely sharp drop over and above this 30 percent soon — laser disk technology is promising mass storage costs of .00000001 cents/bit within the next five years. Already it is possible to store 108,000 video frames on a single low-cost disk, and this is being used in the on-line industry as a delivery vehicle for patent drawings (Video Patsearch from Pergamon). In this system, standard methods are used to search the remote patent database, whereupon a local processor notes the patent number, accesses the videodisk, and displays the applicable drawings on a TV screen. The drawings for the nearly 850,000 U.S. patents issued since January 1971 — along with over 10,000 foreign patents — occupy only nine videodisks.

But this is only one of a host of new techniques for information delivery. At present, most on-line searching takes place at either 30 or 120 characters/second — hardly sufficient for cost-effective retrieval of full text documents. New transmission methods involving satellite links, coaxial cable, and fiber optics will be tried, yielding long overdue alternatives to the present slow data transmission schemes.

Meanwhile, terminal costs are finally decreasing, making those traditional slow methods easier on the pocketbook. There are already a number of portable terminals on the market which, while not easy on the eyes, do allow on-line access no matter where you are. Briefcase computers such as the Radio Shack Model 100 are softening the financial burden of terminal ownership.

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industry involve new software techniques. More than simple extensions of old methods, these involve such provocative research areas as artificial intelligence (AI), natural language understanding, and knowledge engineering.

In particular, AI is making some meaningful contributions to that over advertised but under achieved phenomenon called "user friendliness." Present on-line command protocols, while certainly understandable by any reasonably intelligent person, are nevertheless counter-intuitive and somewhat arbitrary. Improvements are being made in on-line "help" facilities (you can become reasonably proficient on DIALOG's "Knowledge Index" system without a manual). But it would still be nice to enter information requests in relatively unstructured English and expect to be understood.

Intelligent software will also be useful at the terminal end. Customized through experience with a given user and the appropriate subset of all possible applications, it will accept high level commands, translate them, and interact with the remote database system as necessary to satisfy the user's stated need. Encouraging developments along these lines are already appearing in the form of micro based "intelligent database access machines" such as SDC's SearchMaster system.

Another trend to watch for is equally desirable: the replacement of the current profusion of command protocols on different systems with one universally applicable style. As with any standardization issue, there are approximately as many points of view as there are participants, and you can be sure that few on-line vendors will be in any hurry to make their systems look like someone else's. But the demands of the market are rigorous.

Some other new developments are likely to affect the data communications part of the on-line picture. Not only will the networks begin to offer features of their own, but they will become larger and more pervasive, reducing on-line costs for those unfortunate folks who do not presently live within a local telephone call of a network node. Data communication charges via Telenet average only $8/hour, but long distance rates on top of that can be painful.

Along with the enlargement of data communication networks will come a proliferation of "gateways." At present, you access most databases by communicating directly with whatever on-line system hosts them. If you are signed on to the DIALOG system and want to change from Management Contents to Standard & Poor's News Daily, you simply enter the command "B 133" to begin searching in database number 133. That is possible because both of them happen to reside in DIALOG.

But if the file you want to switch to is Accountants, which exists on ORBIT, then you have to log off of DIALOG, log on to ORBIT and take it from there. It's not particularly difficult — but it would be nice to issue a simple command and let the network worry about what computer you happen to be talking to.

The logical extrapolation, and one that makes sense for a lot of reasons, is a move toward more and more distributed databases and away from massive systems hosting hundreds of different files. With large size comes a bewildering array of problems, not the least of which is the impact upon users when the system is down. If gateways between intelligent networks and small database systems can be easily managed, then every mom 'n' pop operation with information to sell could make their database available without having to meet the profitability criteria of a supermarket service.

All of this raises some interesting business issues. It has been estimated that on-line information retrieval will represent a 1990 market in excess of $10 billion, and major vendors such as ITT, IBM, Xerox, AT&T, and GTE are currently positioning themselves to participate. In addition, large traditional publishers such as McGraw-Hill and Prentice-Hall are frantically trying to align themselves with this field, since the potential for erosion of their print market is significant. Electronic publishing will begin to appear less and less strange — especially when the costs go down and computer facilities exist to deal with it efficiently.

All this growth implies trouble, of course, since well-established industries usually don't give up without a

Continued on page 48

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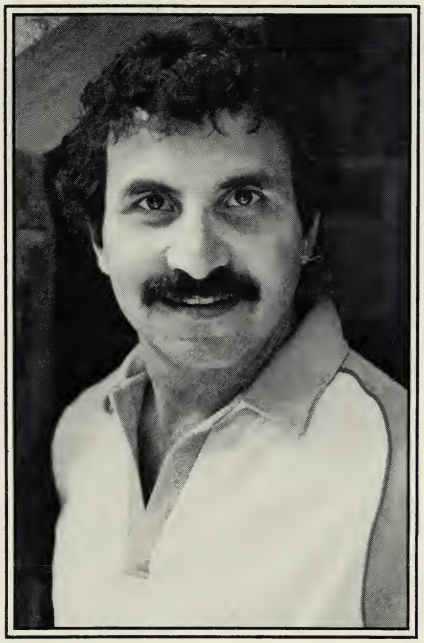
ENTREPRENEUR of the '80s

GOING FOR THE GOLD

by Charles Bowen and Byron T. Scott



Lee Moskow

ED LEVY

Garry Burdick

JANICE CORNELL

Maybe it's a dream that comes to insomniacs.

Maybe in the small hours of the morning, when most of the family's asleep, the vision comes to the tiny corner of the house where the lights are still on, where the indefatigable programmer works.

In these quiet hours, when novels are started and songs composed, the midnight hacker is inspired.

"This program is good enough to sell!"

The feeling itself is not so unique. It fires the engines of enterprise. But when the same vision is visited upon a multitude of people at the same time, it becomes more than that. It becomes a gold rush.

In the last few years, the coming of age of microcomputers has led to its own brand of gold fever. Write programs in your spare time, says the ad in a computer magazine, and watch the money roll in. Clarence Cobol did and now look! He gets $40,000 a year, as regular as clockwork.

The entrepreneur finds his own niche in the boom times, perceives a need and fills it. In the microcomputer community it might be a program, a newsletter, a unique service. If the perception is of visionary quality — the inspiration of a Steve Jobs or a Dan Bricklin — then it's an entre into the ranks of the microcomputer pantheon.

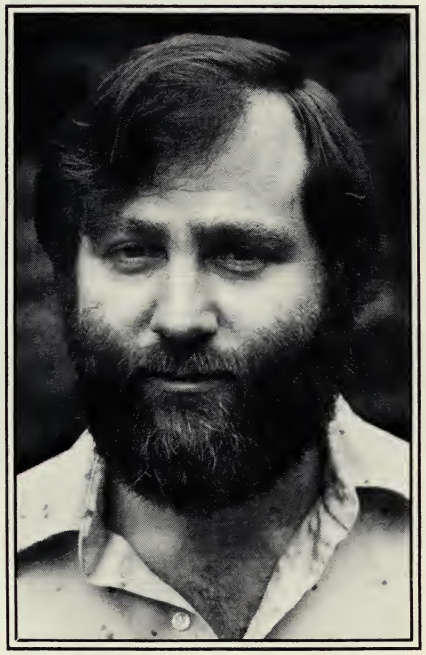
What follows are a few tales from the gold rush.

The men and women here each had a vision, and each handled it differently. Few have made the level of success they had hoped for, but none of them is bitter about it, and most haven't given up. Some say they're a little wiser now, realizing there's a long period of darkness before that "overnight success."

If you are exhibiting the symptoms, perhaps you should spend a few minutes with them — before you give up your day job.

Shutter Shack

ZORIANNA HYWORON



Sheppard Sherbell

ERIC BALKAN

ED LEVY

After Ed Levy wrote his first game program, he took out a small ad in a national computer magazine and sat back to wait.

"I hooked up a business phone," he says. "I got an answering service and opened up essentially a mail order business out of my house. Well, the phone never rang once that month and I got one order.

"That was the end of my elation," he says. "After that month I knew where I stood, and I had to make a decision whether or not to give it up. Since then it's been uphill, and I've put the business in the place where it belongs."

For Ed Levy, 38-year-old author of a number of game programs and a new low-cost word processor, the place his software business belongs is "as a sideline."

He has no plans to give up his day job — he's a corporate executive with a background in systems analysis and operations results in the Philadelphia area.

"I'm not going to get rich," he says, "but I would like to see it be successful."

In the last year and a half, through his Pel-Tek company, he has explored the possibilities of marketing his software. And along the way he's had to make some decisions about himself and how his computing fits into the picture with his family and friends.

Family had a lot to do with Levy's interest in microcomputers in the first place.

"I started writing programs for my kids and figured, why the hell should I spend 200 hours on a program and not try to do something with it?"

He wrote what he thought were two good, marketable games — one a two-player soccer game, the other a variation on a popular arcade game called *Frogger*. Looking back on it Levy says, "That's the last time I ever try to rip off an arcade game, because as soon as I came out with it, there were no less than four others on the market — *Championship Frogger*, the *Original Frogger*. It was just impossible to compete with four others, no matter how good it is."

Levy first offered his games to a number of established game distributors and got some contracts back. "But I figured I could market the games myself and not wait a year to see if someone was going to publish them for me. In other words, I had the resources to go ahead and advertise and duplicate and that sort of thing."

The world didn't beat a path to his door — in fact, he recently donated his *Frogger* game to CompuServe's Public Access collection of public domain software. But still, if he had it to do over again, Levy would have preferred trying to market the programs himself rather than working through a distributor.

"It's the same way I run my business here (his day job) — I want to be in control. If I give a program to someone and they play with it for a year and suggest changes and then maybe or maybe not market it, and they get a percentage and I don't like the way they're marketing it, I would be extremely upset. I figured why get 10 percent when a blank diskette costs you a buck-fifty, and I could make 90 percent."

The main problem with trying to distribute his software himself is that independents get little recognition in the computer press.

"I always felt that if you had a good product, people would find out about it. But I can't get my stuff reviewed. The people who own it call me up and say all kinds of nice things about it, but they don't write reviews."

All told, after a year of trying to market his two game programs, Levy figures he's sold about 15 copies of the *Frogger* game and about 100 of the soccer game. And while he acknowledges that it's "all been very frustrating," he's not licked yet.

Pel-Tek has just started advertising a new product that promises to attract a little more attention: a $20 word processor called The Word Machine. At a time when the price of business application software is going up, Levy's going for the sparcely populated low end of the market.

"It's a machine language line-oriented word processor," he says, "that's ideal for some offices. It's easy to use and perfect for people who don't want to spend hundreds of dollars just to type letters."

After a few ads in computer magazines last spring, he began getting inquiries for reviews. In the first few months he'd sold about 200 copies. Still not riches, but better, he says.

Levy said he hasn't regretted his experience so far. For one thing, it's shown him something about the value of time with his family.

"You know, spending hundreds of hours programming when you have a regular job means that the time that's left is from after dinner until 2 in the morning. So I was missing a lot from the family."

Now his two sons, ages 10 and 7, have become involved with Pel-Tek. Not only does this increase their time together, but Levy's getting the feedback he wants on his programming.

"I pay them two dollars an hour to play my games and make suggestions on things that should be improved, and I get lists of things. They play them for two hours and I get pages of suggestions — and I get a very good review."

JANICE CORNELL

"I always like the open-ended situation, the question mark at the end of the sentence," is the way Janice Cornell explains her interest in videotex. Her new career is turning "?s" into "!s" as vice president for proprietary development of American Videotex Services, one of dozens of newly-created firms developing and brokering videotex packages.

At last summer's Videotex '83, the cocktail parties and exhibit aisles were jammed with this new breed of entrepreneur prospecting for gold among the industry giants who own the hardware and databases.

"A year or two ago the word 'videotex' was Greek to most of us," Cornell explains. "Now the concept is clear and the applications are coming faster than any one company can handle them."

A 27-year-old, self-confessed "former hippie," she graduated from a liberal arts college (Lafayette) with a degree in history. ("I'd been worried about the future of the world since age 14 . . ."). This was hardly preparation for videotex, still dominated by "techies" with backgrounds in engineering or computer science.

"But new knowledge exhilarates me," she says. When, after a year as a department store buyer, she was hired by the National Advertising Bureau to keep up with new technology for its members, the hook was set.

American Videotex Services was founded in December, 1981, making it one of the older of the new videotex packaging firms. Cornell is an associate with two relatively senior executives. Paul Storfer, president of AVS, formerly headed videotex development at CBS, and Don Wilson, board chairman, is a former Mead president who helped create Lexis and Nexis.

Understandably reluctant to talk about current projects, Cornell says the New York-based company has grown to five full-time staffers and a pool of special project part-timers. Among AVS' projects have been the creation of a database for Mattel's "Aquarius" computer and roles in planning industrywide meetings like Videotex West and Videotex '83.

At any such meeting, the ratio of men-to-women still exceeds 50/1. Cornell grins as she says: "I see a role for women in every industry, including

ERIC BALKAN

Eric Balkan approached the microcomputer "gold rush" cautiously.

He had a dream too — that his idea for publications for computer industry professionals would one day support him. He thought he had a feel for the computer market. After all, he had worked with computers since the mid-'70s. He saw what he thought was a need — a directory with which people could locate consultants and independent programmers.

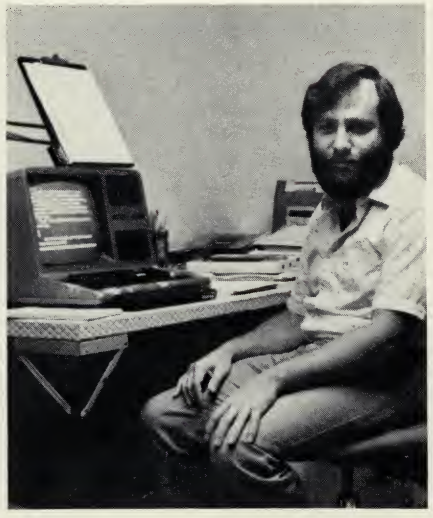
When the microcomputer boom got rolling, it looked even more promising, since many of the people buying micros had no experience with computers and would have even a greater need to locate good help.

So in 1979 Balkan started a directory of computer consultants and programmers for hire, quickly followed by *Computer Consultant*, a monthly newsletter.

Balkan never gave up his day job — he was, and is, a systems programmer working with mainframes in the Washington, D.C., area — but he expected that the publications, and those that followed, would eventually support him and his family.

"I had contacts in the business and most of them shared my feelings that publications like this should make it."

By the 1980s Balkan's publications had become Battery Lane Productions of Bethesda, Md. He kept costs down



by handling all the composition himself and provided the printer with camera-ready copy.

But by 1981 the *Consultant* still hadn't caught on.

"Everybody wanted to be in the directory," he says, "but I didn't find anybody who wanted to look in a directory to find a consultant. So even though there were people who would pay to be in the directory, I couldn't even give the copies away."

Still believing in the general concept of *Consultant*, Balkan thought perhaps the medium could be better. Even though a self-produced newsletter could be released fairly rapidly, Balkan was struck by the "instant audience" potential of videotex and in 1981 contracted with CompuServe Information Service to produce The Micro Advisor, an on-line advice and reference service for people with microcomputers.

Because videotex was and is still young, he didn't expect Micro Advisor to make him a rich man, but he did expect it would support his newsletter publications and develop a following of its own.

He was disappointed to find that "it seems the transactional services, the interactive features, are the most popular on CompuServe and The Source. Actual newsletters don't get that much attention." The Micro Advisor ceased publication in August.

Meanwhile, back at Battery Lane, Balkan expanded his publication list to include directories and guides by other people, but he was finding trouble getting contributors to his own publication and to Micro Advisor.

Part of the problem, he acknowledges, might be what others in the field have noticed: Programmers and others in the technical fields are not "word-oriented"; they aren't comfortable committing their thoughts and their stories to paper, or even screen.

"I don't know for sure," Balkan says. "In two years of Micro Advisor, for example, I had only one person offer to contribute. And he backed out."

this one. Women will tend to get more involved as videotex moves into the mass market level. They have to be there."

She's not at all afraid — of being a woman, of being a humanist, of being in a new, high risk field. "I think it fits me very well. I'm excited about what videotex will do to the whole picture, the whole world. Trends and risk always have attracted me . . . Most of my friends, now that I think of it, are entrepreneurial."

That characteristic extends to her husband, a speculator in the international gold market. "We could have used a good database on our honeymoon," she recalls. "He kept leaving the beach to find a telephone and then couldn't always get the information he needed."

Going into 1983 *Computer Consultant* had reached a break-even position, "but I couldn't take it any further. There was enough money coming in to pay contributors and to pay all other expenses, but not enough left to pay myself for the time." So Balkan let the publications fold.

The experience has not left a bitter taste in his mouth. In fact, he's still interested in writing — he's working with a national publisher for the distribution of a revised version of Battery Lane's software publishers directory, due for publication this fall, and he's working on other book ideas.

Balkan figures he's learned a lesson about self-publishing.

"The problem with *Computer Consultant*, outside of the fact that I was trying to do it part time and never gave it the time it needed, was that I never found the right focus. I never found what it was that consultants and contract programmers really wanted from a newsletter."

And if he were to do it again? He'd learn the audience first.

"What I did wrong was not to do market research up front to find out how many people would buy a market directory or a newsletter and what they'd pay for it . . . People don't want to hire a consultant from a directory. They'd rather do it by word of mouth.

"I just never found the right information to provide to people."

ZORIANNA HYWORON

The Videotex '83 display area was awash with glowing terminals and high-tech salesmen in bright blazers. But one booth attracted crowds because of its contrast:

Men and women stood around in aprons and tall chef's hats balancing keypads and wine glasses in their hands. And all because Zorianna Hyworon likes to collect recipes.

The Home Management Systems display at the giant industry meeting was the only one booth run by an information provider (IP). It also was the only one where you could munch on cheese and crackers. At the center of it all was Ms. Hyworon telling the story of the year-old Canadian company.

A full-time technology and assistance planner for the provincial government, she also is a recipe and cookbook collector. "I own more than 150 cookbooks," she explains, "but like many people interested in food, I also collect recipes. About four years ago I started pasting the collections onto index cards and organizing them. There turned out to be over 3,000 cards."

Her husband, Eugene, an importer and distributor of educational materials, liked the new meals and encouraged sharing the system with friends. "I like to entertain," she says. "I once had 109 friends for dinner." One of these friends was a systems consultant who told Hyworon that the recipes-on-cards were "really a database."

Following some initial studies and discussions, the Hyworons joined with two management and systems consultants and another family friend to form Home Management Systems. The cards-turned-database went up on Grassroots, a for-profit Canadian videotex system in Winnipeg, this spring. Begun with 50 recipes, it now contains more than 1,000. There is an associated wine selection database and an electronic mail service for trading recipes and market information.

"We're getting 5,000 hits a month on the recipes alone," she claims. "That's pretty good for a service with about 1,400 subscribers."

Hyworon credits much of the success to her "end user" partner, Motria Kydon, who is in charge of product development. A former elementary school teacher who retired to raise a family, Kydon "runs a very efficient

home and knows what the users want. That's why we chose her."

Although the company has yet to sign with any U.S. clients, that was the purpose of its Videotex '83 booth. The Grassroots experience is proving helpful. "What's happened is we haven't added subscribers, but we've added a second member of the family — the wife or meal planner," she says. This response has interested potential clients such as banks, who realize other services must accompany bank-at-home and bill-paying.

Home Management Systems also offers sponsored products, with an emphasis on coupon offers, market surveys and other advertising products.

Although the partners have invested about $100,000 to date, "we are determined to concentrate on content and not become capital intensive." Most funds have been used in decision support and in building the service's Telidon color frames with the assistance of a Winnipeg graphic arts company.

"If things go as planned, we expect to recoup our investment in a few months," Hyworon says. The company moved into a small commercial building in Winnipeg this summer and will expand from seven to 15 full-time employees. The managing partners, except Kydon, however, run the company "on a late night, weekend and vacations basis."

Hyworon and her partners soon may have to make a decision whether to devote full time to videotex or hire others to run the company. "I hope we do have to make that decision," she says. "But right now I know we've got a smart idea."

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LEGAL PROBLEMS OF A HOME BUSINESS

by L.J. Kutten,
attorney at law

"Can anyone remember when the times were not hard and money not scarce." — Emerson, Works and Days

A microcomputer may be the greatest impetus to productivity that capitalism has ever seen. It allows an entrepreneur to start a small business without incurring large salaries in support personnel. With the right software and practice, a small businessman can do word processing, prepare bills, keep track of inventory, prepare the general ledger, and the like. Furthermore, he can use the wide variety of services offered by CompuServe to advertise his wares or services, contact his customers and suppliers, and keep a pulse on the marketplace.

These benefits are not limited to the full-time entrepreneur. They can also help the person with a full-time job elsewhere who wants to run a part-time business out of his home to fulfill the dream of being his own boss, or to have a better lifestyle.

But before you rush out and start a home business, stop. There are two important points to consider. First, what requirements must you meet to deduct your home expenses from your income taxes? Secondly, what restrictions does zoning and restrictive covenants place on the use of your home?

This article will broadly cover these two areas. It will examine some of the particular points to consider before starting a home business. It will not take the place of competent advice as to your particular situation.

Income Taxes

The Internal Revenue Service has very strict requirements for deduction of home office expenses. It requires that part of the home be used exclusively and on a regular basis as the principal place of business of a trade or business.

"Exclusivity" is not as simple as it appears. It is fraught with pitfalls for the unwary. It means that the room, or portion thereof, used in your house to operate a home business must not be used for other non-business purposes. This can cause some very harsh results.

Example 1: Taxpayer owned a hot dog stand two blocks from her home. Lacking full kitchen facilities in the stand, she used her home kitchen to prepare the hot dogs. A deduction for kitchen use (depreciation of the ovens, etc.) was disallowed since the kitchen was also used to prepare family meals.

(See Baie v. Commissioner, 74 Tax Court 105, 1980.)

You do not have to separate the area by a wall or partition. If you exclusively use a portion of the room for business purposes, that is sufficient.

Example 2: Taxpayer, a physician, manages an apartment building from his home. He uses one-half of a bedroom as an office. He has a separate telephone line in the "office" and stores his records there. Since the office is "exclusively" used for business purposes, he can deduct his business office and depreciate that portion of the house used as an office.

Principal Place of Business

A taxpayer can have more than one principal place of business provided he has more than one business. He cannot have more than one principal place of business per business. Consider the following examples:

Example 3: Taxpayer, a lawyer, has a permanent office in the city but keeps a home office where he prepares his cases. Since the city office is his principal place of business, he cannot deduct his home office expenses.

Example 4: Same as above except the lawyer works full-time as an assistant city manager. She has a home office from which she conducts a part-time, private practice of law. Since the office is used exclusively for a different business than her daytime job, deduction will be allowed.

Regularity

The home business must be conducted on a regular basis. Occasional or incidental trade or business use of a home office is not sufficient to support a home business deduction.

Example 5: John, a 19-year-old college student, occasionally works as an independent contractor by writing software at home. As he works only when he wants to, a deduction for home office expenses will be denied.

The government wants to make sure the taxpayer is truly in business and not just trying to deduct a hobby expense as a business expense.

What You Can Deduct

You can deduct as a business expense your cost of doing business. These costs include stationery, telephone service, business insurance, and the like. You can also deduct some of the ordinary cost of maintaining your home. You cannot deduct more than the gross income derived from the business. This means you cannot deduct any home business losses against other sources of income such as a second job, dividends, and interest, which you could if you ran the business elsewhere.

Example 8: A retired accountant operates a mail order computer store from her home. In her first year of business, her gross income was $5,000. She uses 25 percent of house exclusively for the business. Her yearly mortgage is $12,000; she pays $2,000 for real estate taxes, and her yearly maintenance expenses including utilities total $8,000. Her business expenses for insurance, stationery, and a special telephone line total $2,000.

Her deductions would be:

25% of mortgage =	$3,000
25% of real estate taxes =	$ 500
25% of maintenance =	$2,000
100% of business expenses =	$2,000
Total deductions =	$7,500

Since her income was only $5,000, her deduction is limited to $5,000 and not the $7,500 actually incurred. She is allowed this deduction even if she takes the standard deduction on her tax forms.

Restrictions on Uses of Real Estate

"For a man's home is his castle." — Sir Edward Coke, Third Institute, 1644.

In today's world, a man's home is not his castle. In order to protect the public's health, safety, and welfare, government (whether it be national, state, or local) and individuals have placed restriction on what you can do with your home.

The government restricts property utilization through zoning laws; individuals do it with "trust agreements and indentures."

Zoning laws are legislation normally passed by municipal governments that divide real estate into districts and describe how the property in each district can be used.

Trust agreements and indentures are agreements that run concurrent with the title to any real estate you might buy. They are detailed regulations, normally first prepared by the developer of a subdivision, that describe how the real estate can be used. The agreement is filed with the recorder of deeds or similar office before the first lot is sold. When you buy the real estate, you buy it subject to the previously filed agreements.

Zoning and trust agreement can determine what type of industry can go into an area, the relationship that must exist between people before they can share a home, and what you can do with a house.

Zoning

Until the rise of industrial America, it was common for most workers, such as the baker, dressmaker, doctor, and others to either live at or very near their place of business. With the rise of mass transportation and the automobile, people could afford the luxury of commuting to work. As people developed neighborhoods, they desired to protect them. They did not want to invest their money into a home only to have a commercial establishment next door, so zoning regulations were developed.

Most current zoning laws restrict commercial use of residential property, yet they do not totally prohibit it. This anomaly arose because commercial use of a home (hereinafter called home occupation) was too important to be summarily terminated when the first zoning ordinances were drafted. Today, while home occupations are allowed, they can be zealously limited.

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A typical statute follows:

"Home Occupation: Any occupation or profession carried on by a member of a family residing on the premises, provided that in connection therewith no sign is used other than one nonilluminated name plate attached to the building entrance which is not more than one square foot in area; provided that no commodity is sold upon the premises, provided that no person is employed other than a member of the immediate family residing on the premises; provided that no mechanical equipment is installed except such that is used for purely domestic or household purposes; and provided that not over twenty-five (25) percent of the total actual floor area of any story is used for home occupation or professional purposes." City of Clayton, Mo.

This statute is not unique. It clearly states the six criteria that are important in understanding home occupation limitations. These areas will be examined in detail below.

Residence in the Home

You must reside in the home. Business use of a home is a subsidiary use of a home; the main use is to be a residence. If no one resides in the home, then the business use has become the dominant utilization of it.

The owner of the home occupation must live in the home. If he rents out the living area of the home to a tenant, then the business use of the home has become dominant feature. However, there is nothing wrong with a tenant having a home occupation (provided it does not violate the lease) as the home occupation would still be the subsidiary use of the home.

Exterior Modification

Few things will bother a neighbor more than erecting a big gaudy sign announcing to the world that your home is the location of 'Joe's Bait and Tackle Shoppe," or building a smoke house to cure meat. So in order to preserve neighborhood integrity, most zoning regulations restrict the owner from making large structural changes for the home occupation and having large signs.

The regulations cannot totally eliminate signs since the Constitutional Freedom of Speech is involved. So long as the limitation is reasonable, it will be upheld (for example, a specific limitation on size, such as, no more than one square foot).

Another common limitation is requiring that the entrance to the home occupation may not be a separate entrance. Again this is done to preserve the facade that the home is no different from other houses.

Other Limitations

A zoning regulation may prohibit the selling of goods from the home. The intent is to limit home occupations to the professions, such as law, medicine, accounting, clergy, etc. This distinction arose because professional offices are deemed to be less obtrusive than retail stores. This limitation will not prevent a mail order business from operating in the home.

Generally, there is a limitation on the number of employees that can be employed in a home occupation. The limitation can require that only members of the family living on the premises can be employees or an absolute limitation on the number of employees (for example, two). Again the desire is to make sure the business use of the home remains subsidiary and does not disturb the neighborhood.

This limitation can be very important since home occupations may require utilization of "support personnel." For example, the doctor who has an office in his home will be hampered in running a practice without a nurse or receptionist.

Another restriction limits the size the home occupation can use in the home. Again the idea is to make sure the home occupation is subsidiary to the primary use of the house. This limitation may range from a percentage (for example, 25 percent of the total living space) to an absolute limitation (for example, 200 square feet).

Mechanical Equipment

The most important limitation is on what kind of equipment may be used. Many zoning laws limit use of mechanical or industrial equipment to those customarily used in the home, such as typewriters, telephones, sewing machines, etc.

You may think there is no question that microcomputers are equipment customarily used in the home. If you do, tell that to Walter and Mona Scott of St. Louis County, Mo. They opened a computer consulting firm in their own home. They were told by the St. Louis County Public Works Department they would have to close up the business. It took a written opinion from the St. Louis County Counselor's Office to rule that in "today's computerized society . . . computers have become a recognized home use." This decision officially put the microcomputer in the same status as typewriters and sewing machines, at least in St. Louis County.

Restrictive Covenants

As stated above, restrictive covenants are agreements that limit your use of real estate. You bought your home subject to the limitations and conditions contained in it.

Sample Text: "This indenture by and between ACME Development Company, developers of Shady Lane Subdivision, and the trustees of said subdivision . . . That no residence . . . nor any portion of any lot be used or devoted to any commercial, industrial, or manufacturing activity whatsoever provided that nothing shall prohibit any duly licensed physician from having an office in his home."

If you live in a subdivision or block that has trustees or signed a preprinted lease to rent your home, you probably have restrictions on what you can do with your home. On a rented home, check the fine print in the lease. If you own your own home, check with either your mortgage holder, the trustees of the subdivision (lack of trustees does not mean there are no restrictions), and, if you bought title insurance when you bought the house, the title insurance policy.

These restrictions are just as valid as zoning laws. As a practical point, they may not be strongly enforced, especially if you have a home occupation that does not disturb the neighbors, such as tutoring. If there is a blanket restriction on home occupations in the agreement, you must still determine if the agreement is binding. Many of these agreements have time limitations built into them, and if they are not properly renewed, they expire.

Some Practical Hints

When operating a home business, it helps your case with the Internal Revenue Service if you have a public image of a business. There are a variety of steps you can take to help give this indication.

Most importantly, have a separate business checking account. Do not

commingle your business funds with your personal checking account. If you estimate that 25 percent of your home is used exclusively for your business, use the business account to pay for 25 percent of the home expenses.

Example 7: If your monthly electricity bill is $100 and 25 percent of your home is used for the business, pay $75 of the bill with your personal check and $25 with a business check.

Advertise! Tell the world that you are running a business and where it is located: send announcements, place advertisements in the newspaper, have business cards printed, and the like. Be warned if you get a business telephone line, it will cost considerably more than a personal line; however, you will need a business line in order to get a yellow pages listing.

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Buy business insurance. Most homeowner's insurance will not cover your losses if your inventory or business equipment (for example, typewriter, photocopy machine) is stolen or if a customer slips and falls in your home.

Do not get greedy! If you do not show a profit in two out of five years, the Internal Revenue Service will presume that your activity is a hobby and thus none of your expenses would be deductible. This could mean that your income taxes for the previous year may be reaudited with a finding that you owe more income taxes along with interest and perhaps a penalty.

Finally, do not put a substantial investment of time and money into a home business without checking out the legality of it. If you do not, you have no one to blame other than yourself if you are later told you have to shut it down or move.

L. J. Kutten is an attorney at law in St. Louis, Mo.

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Mark Ulrich

by Carole Houze Gerber

Computers in the Workplace MASTER or

Are computers tools for creativity that free workers from the mundane so they can conceive the magnificient? Or are they tedious taskmasters that numb the minds of bored employees?

Your viewpoint, according to recent studies of automation in the workplace, may depend heavily upon your place in the office hierarchy. A national study commissioned by Honeywell, which surveyed the attitudes toward office technology of more than 1,200 secretaries and 900 managers, showed managers to be considerably more positive about automation than their support staff.

"The two groups have rather divergent views on how the office as a whole could be made more productive," the 1983 report states. "For managers, the key is automated equipment." Secretaries, on the other hand, take a more humanly-oriented outlook: four in 10 said better communication from their bosses would be the most important factor in improving productivity.

A recent study commissioned by Steelcase Inc., an office furniture manufacturer based in Grand Rapids, Mich., supports the cry for better communication. Nearly two-thirds of the more than 600 companies included in their recent survey, "White-Collar Productivity: The National Challenge," ranked staff communication as essential to increased productivity.

Finally, "Frustration in the Workplace: Its Effect on Productivity," a study prepared last spring for A.B. Dick, showed improved communication ranked second to increased salary as a motivator to increased productivity. Automated equipment ranked fourth. As use of computers in the workplace becomes common, the A.B. Dick study urged managers — for reasons both humane and practical — to look closely at their effect on workers. "The personal side of office automation is an important issue," Donald G. Dowd, corporate vice president of communications for A.B. Dick, has said. "Discontented workers won't be productive workers, and teamwork contributes to productivity."

Automation Arrives Via Stagecoach

The personal side of office automation has not, according to the Honeywell report, affected the majority of workers — for the simple reason that many offices still operate in the old-fashioned way. More than half the secretaries in the Honeywell survey still do not have word processing equipment. Two-thirds do not have memory typewriters. And only one-fourth have access to personal computers, electronic mail and computerized filing and scheduling. A Honeywell statement introducing the report put it succinctly: "Automated office equipment . . . is arriving at the modern office with all the speed of an old-fashioned stagecoach."

Not surprisingly, the Honeywell survey found that large companies are more likely than small ones to have computers and other trappings of automation. The overall lag in outfitting offices to meet modern needs is astonishing — despite the fact that the economy has moved from an industrial to an information base, the average factory worker is backed by $25,000 in machinery and equipment, while the typical office worker has only one-tenth that amount in furniture and business machines, according to the results documented in "White Collar Productivity: The National Challenge."

White collar costs are expected to rise to $1.5 trillion annually by 1990, but productivity indexes for 1982 show that

SLAVE?

average annual white collar productivity between 1973 and 1981 rose only 0.2 percent. Additional statistics from the Houston-based American Productivity Center, which prepared the Steelcase study, show that white collar productivity rose 1.8 percent between 1965 to 1973, and 2.4 percent from 1948 to 1965. The irony is clear: Although office workers stand on the edge of the information revolution, productivity figures show a recent annual decline of three percent.

Finding a Better Way

It's apparently not for lack of paper that white collar productivity lags. An estimated 45 sheets of paper per day are generated for every white collar worker in the United States, according to figures from A.B. Dick. Multiply this by a white collar work force of more than 52-million workers, and the result is, as one manager remarked wryly, "a lot of trees being sacrificed."

Unlike factory work, which shows visible and measurable results of labor, white collar output is often difficult to gauge. In most situations, say researchers at the American Productivity Center, ". . . white collar work is not patterned or sequential, and does not result in a tangible product." In fact, one of the major findings of the Steelcase study of white collar workers was that nearly one-third of managers involved in programs to improve productivity said the most important lesson they learned from participating was that productivity is hard to measure.

Of the dozens of firms surveyed in the Steelcase study, including such giants as American Express, IBM and American Telephone and Telegraph, 34 percent said that word processing equipment — which produces a tangible product — was the most effective technique for improving office productivity. The more managerial computer functions such as electronic mail and automated records management lagged far behind with only two percent of the firms surveyed listing them as most effective.

That computers, word processing equipment and other automated machinery can improve at least the measurable forms of productivity is rarely disputed. A 1980 study by the managment consulting firm Booz, Allen, Hamilton showed that proper use of electronic tools could save 15 percent of "knowledge" workers' time by 1985. To accomplish this, experts at the American Productivity Center predict that in the next few years American firms will scramble to equip white collar workers with time-saving tools. By 1989, they say, the paltry $2,500 presently spent on equipment and furniture for each office worker will quadruple — reaching $8,000 to $10,000 to outfit the workforce with electronic equipment and "task-supporting" furniture.

Employee Involvement is Essential to Acceptance

A 1980 study published in *The Wall Street Journal* reported that only about one in 10 people working in bureaucratic organizations were willing to use computers. Just three years later, 90 percent of secretaries and managers responding to the Honeywell survey reported an "overwhelmingly positive" reaction to computers and other types of automated equipment used in their work. In fact, seven of 10 secretaries say they would have a hard time completing their tasks without the equipment — and managers and secretaries alike expressed few if any concerns about automation.

"Don't knock it until you've tried it," sums up the attitude of many workers at all levels who've become proficient on computers and word processors. But some workers, particularly clerical workers at insurance companies and other firms that process vast amounts of data, complain that managers' increased productivity demands have created computerized sweatshops. Judith Gregory, research director for 9 to 5 National Association of Working Women, a Cleveland-based office workers' group, has charged that automation puts clerical workers on "the electronic equivalent of the moving assembly line."

At least some executives share Ms. Gregory's concern. In commenting on his firm's survey, "Frustration in the Workplace: Its Effects on Productivity," A.B. Dick Vice President Donald G. Dowd has said, ". . . When you put in a whole bank of screens and expect workers to sit glued to them all day, you destroy the personal interaction and productivity with it."

Industrial psychologists, management consultants, researchers and employees all stress that effective automation must be accompanied with concern for workers' human needs. "Employee comfort is an important consideration," states the Steelcase study, which added that complaints of physical problems must be addressed and solved. Some employees' psychological problems with automation inhibit productivity, the study reported, and create feelings of low self-esteem, insecurity and a general hostility toward the equipment.

Assuring worker acceptance of automation may be one of the most important management tasks of the 1980s. Seminars with such titles as "Overcoming User Resistance to Corporate Integration," and "Overcoming EDP Department Resistance to User 'Freedom,' " pack in business owners and managers eager to make the transition a smooth one for their organizations. Not surprisingly, managers are told that employees resist changes foisted upon them. "Computer awareness" has become an industry buzzword and goes hand-in-hand with teaching the machine skills necessary for automation.

The focus on employee involvement in the overall automation effort is borne out by recommendations made by American Productivity Center researchers. "The people who work with electronic equipment determine its success," states the report on white collar productivity. "A high level of employee participation in designing the electronic office system, planning the installation, and training will pay off in positive attitudes and a satisfying work environment." Friendly users, it seems, are as important as friendly equipment in making the electronic office a reality.

Futurist Alvin Toffler agrees. "Many of the horror stories about companies that have tried to automate and flopped are related to . . . problems that are 90 percent human-based," he has stated. A 1980 Harris poll of 1,000 office workers and managers also supports the rather common-sense observation that workers are more productive if they participate in the decisions that affect their jobs.

A pep talk, a few employee committees, a quick equipment installation and a training session or two should do the trick, right? Wrong! Depending upon the extent of automation, the whole process will probably take several months. Computer specialist William E. Perry, author of *So You Think You Need Your Own Business Computer/The Manager's Guide to Selecting, Installing, and Using the Right Small Computer System* (John Wiley & Sons, 1983), writes that training should begin as soon as the computer decision is made — and should continue for a long period after the equipment has been installed.

Perry lists four stages to computer awareness training. These include a computer acquisition session to tell why the computer is being installed, explain its impact on jobs, and to answer employees' questions. Periodic question sessions should follow the first one to update employees and allow them to question the methods and procedures for installation. Perry recommends a preinstallation session for employees affected by each application to explain responsibilities and answer questions. Finally, a debriefing session to hear employees' suggestions and address their problems and concerns should occur shortly after all installations.

Care should also be taken, warns the Steelcase report on white collar productivity, to make sure all factions within the organization work together. Information is power, and data processing, management and clerical users are frequently territorial and isolated groups when it comes to sharing information. Placing more emphasis on the input of one affected group over another also portends trouble. "To ignore the advice of workers most affected by change is to court failure. For they are not only a source of valuable information, but also an essential and potentially rich source of support," the report states.

Humanizing the machine commands necessary to complete various tasks would go a long way in making new users comfortable, some critics charge. Phrases such as "quit this screen," "abort this program," and "halt input" appear stilted, cold and machine-like to most computer neophytes. Others gripe that much of the available business software leads users through unnecessarily tedious steps. And male managers, particularly those in their fifties, frequently lack even the most rudimentary typing skills. Keyboards — regardless of the machines they grace — are still regarded by some executives with suspicion and disdain.

But despite the human problems related to widespread implementation of computers in business, the white-collar workforce — according to conclusions in the Steelcase-sponsored study — wants to improve productivity. American office workers of the '80s are better educated, more sophisticated and, say the experts, more open-minded about change than ever before. This adaptability will be the key to the acceptance and use of machines that will, once mastered, make most white-collar jobs easier and more rewarding.

Carole Houze Gerber is a contributing editor of TODAY. Ms. Gerber's CompuServe User ID is 70007,1215.

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THE MORROW DESIGNS MD3 DESKTOP COMPUTER

Reviewed by Ernest E. Mau

Morrow Designs Inc.
600 McCormick, San Leandro, CA
94577, (415) 430-1970
List price: $1,895.00

The latest Morrow Designs' small computer is the MD3 Micro Decision. While Micro Decisions have been around for at least a year, the MD3 now provides two double-sided double-density disk drives — sometimes called "dual quads." With increased capacity for data and program storage, the MD3 offers improved capabilities, better performance, and more flexibility than before.

The two disk drives provide 384K of storage apiece, so a typical two-drive system easily handles disk intensive programs like WordStar — programs that cause problems with systems having less storage capacity. If that's still too limited, one or two additional drives can be added to increase online storage to more than 1.5 million bytes.

The Micro Decision also features a "virtual drive," which is a fancy way of fooling the system into believing it has one more drive than exists. This allows a program to use data or access a program from an uninstalled drive. The system recognizes that the drive doesn't exist and prompts the user to change diskettes in the primary drive.

Originally, the virtual drive allowed single-drive systems to perform operations like copying files through a process of successive diskette swaps into and out of one drive. However, it is useful in multiple-drive systems. For example, on a two-drive MD3 running WordStar, it is possible to fill a data diskette so WordStar might be unable to save work done to that point. With the Micro Decision, it's possible to save the text to Drive C instead of Drive B, causing the system to temporarily reassign Drive A as Drive C, prompt for a change of diskettes, and permit storage to proceed.

In operation, the Micro Decision is a charmer. It's neither "unfriendly" nor overly user friendly. That is, it provides needed help for novices, but allows experienced users to override menus, messages, and setups to achieve efficiency without compromising performance just to accommodate novice-level activities.

When installing the MD3, specific information is input to the uninstalled operating system. This includes the number of disk drives and the terminal being used. Installation of programs then is accomplished through menu selections and a logical sequence of responses to on-screen directions. The procedure even assures that the correct master diskettes are inserted at the right times and in the right drives while working copies are being prepared. Thereafter, it's possible to operate standard software packages by entering menu selections when requested.

That makes the system easy to set up and operate for first-time users. But it has disadvantages. The capabilities of installed programs may be too limited for extended use without modification. To illustrate, the initial setup allows selection from numerous terminals, but converts operational parameters to one of three types and then insists that all programs be installed for that type. With other than the standard Morrow Designs' terminal, some features for highlighting, controlling screen displays, and other operations aren't operational.

Furthermore, the standard menu-driven procedure installs WordStar for a "teletype-like" printer. That works with virtually any printer, but doesn't use advanced features of high-performance printers available today. If a user has an expensive multi-feature printer, the job may get done but with less efficiency than expected.

Luckily, such limitations can be bypassed. Once familiar with the equipment and programs, it's possible to backtrack and reinstall the software. Now the operating system is configured for "no terminal" to bypass the preconfiguration. Then, programs are manually reinstalled with routines available on the master distribution diskettes. Such customized installations can configure any terminal, printer, or operational parameters needed. Some convenience in menu-driven startup may be lost, but general efficiency and performance can be optimized.

The Micro Decision is not a recreational computer. It has no color graphics. It doesn't play elaborate games. Instead, it's a serious computer for a serious user, especially in small businesses such as consulting, free-lance writing, accounting, and others. It's a conventional 8-bit computer with a 4 MHz Z-80a microprocessor and 64K of random-access memory. When many computers are being introduced with 16-bit processors or multiple processors, that may seem limited, but it offers just about all the computing power the average user or small business is likely to use. Besides, the CP/M 2.2 operating system employed accepts perhaps the widest possible selection of existing and well-proven applications software.

Disk compatibility might seem a problem at first, since the Micro Decision uses its own high-density diskette format. Yet instead of cutting users off from available software, this system is provided with programs that read

from and write to Osborne 1 single-density, Xerox-820 single-sided single-density, and IBM PC diskettes. The Micro Decision cannot format those diskettes, however. It can only read from them or write to preformatted ones. For IBM PC diskettes, further limitations are that they must be CP/M-86 single-sided and only data can be used, not programs written for 16-bit processors.

There's even an "auto-run" program that permits "turnkey" operation where a specific program is run automatically on switching power on and booting a diskette. This can be used for automatic display of a diskette directory, automatic entry into a word processing package, or other applications where intermediate steps aren't desired.

The system is delivered with an extensive selection of standard software. This includes the popular WordStar 3.0 word processor. Although WordStar 3.3 now exists, it doesn't offer real advantages over version 3.0, so the older version does not detract from the system. MailMerge for WordStar is not included, but can be added separately.

A spelling proofreader, Correct-It, also is included, as is a version of Aspen Software's Proofreader. Though well suited to WordStar documents, the licensed version is an old one at least two revision levels out of date. It performs well, but it's not as fast or as convenient as later revisions to the Aspen Software product.

In addition, the system provides Microsoft BASIC-80 and NorthStar compatible BaZic for those wishing to do their own programming. A database management system (DBMS) called Pearlsoft also is provided, as is an electronic spreadsheet called LogiCalc. In some business or professional applications either or both may prove valuable.

As a final software addition, the MD3 Micro Decision, and only the MD3 model, comes with the Quest Bookkeeper for accounting. This one is not a totally free inclusion. As delivered, only a "demo" system can be run. To obtain a key that unlocks the production version, users must send an additional $37.50 to the software supplier. A potentially major flaw in this package is that the key is tied to the name printed on every accounting report. The program cannot be used to do accounting for others because there's no way to change the names on reports, making it unsatisfactory for people who specialize in accounting services.

Most things to this point have sounded pretty good. But there are shortcomings, as usual. First, the double-sided double-density drives are noisy. They "chatter" as the heads move and, when new, sound as though they're going to rip apart. There's no apparent damage done, and no errors or problems have been noted other than the annoyance of the noise. After a few weeks, the drives do quiet down considerably.

Second, the input/output structure is limited. This single-board computer has no provision for expansion. Aside from being able to add two more disk drives, there can be no added memory, buffers, interfaces, or plug-ins of any type. The unit is equipped with two RS-232 serial interface ports. One must be used for the external terminal and keyboard. The other may be used by either a printer or a modem, but not simultaneously. For both telecommunications and printing, it's necessary to swap cables or install an external switching device at extra cost.

The unit lacks parallel interfacing needed by many dot-matrix printers and some letter-quality units. To connect a parallel-interface printer, it's necessary to install either an external multi-port printing buffer capable of rerouting communications or a serial-to-parallel interface converter. Again, either imposes extra costs.

Yet another problem involves positioning of internal baud-rate switches, particularly for the printer/modem port. Located underneath the disk drives, they're difficult to reach. There is a program provided for resetting the baud rate from 300 to 1200 baud for alternating between a modem and a printer, but it only works if the switches are in the 300 or 1200 positions. To alternate between other rates for special applications, the switches can be a problem.

In general, positives outweigh negatives, and the overall assessment is favorable. The manufacturer has been around the microcomputer business for several years and has a reputation for turning out quality equipment. While the Micro Decision certainly isn't everyone's perfect machine, it serves well within small-business and serious individual applications like word processing and data management.

AMPEX D125 VIDEO DISPLAY TERMINAL

Ampex Corp.
Memory Products Division, 200 North Nash St., El Segundo, CA 90245, (213) 640-0150
List price: $675.00

Reviewed by Ernest E. Mau

Wow! Imagine having 19 terminal models among seven brands at your fingertips. All in one neat package and accessible with a few keystrokes. That's just one feature of the D125 terminal, which can emulate any of the following plus its own Ampex mode:

1) ADDS Regent 20, Regent 25, and Viewpoint.
2) DEC VT52.
3) Hazeltine 1400, 1410, 1420, 1500, 1510, and 1520.
4) Lear Siegler ADM3, ADM3A, ADM3A+, and ADM5.
5) Soroc IQ-120 and IQ-140.
6) Televideo 912 and 920.

Such emulation is important. Often it's necessary to customize software for specific terminals to use screen clearing, reverse video, bright and dim highlighting, and so on. Yet most programs provide a limited list of terminals, requiring many hours of "patching" to get them to work with a nonstandard device. With the D125, at least one emulation mode is bound to be usable, so hours of trial and error are eliminated.

Furthermore, individual programs can run with a terminal that shows each to its best advantage. For example, a given word processor might look best with a Televideo 920, while another might be most appealing on a Hazeltine 1500. Often this depends on the terminal the programmer had handy. The Ampex D125 allows a user to adjust quickly and easily.

Notably, all emulations, functions, and characteristics are controlled from the keyboard. No switches. No powering down. No interruptions. Most changes can be made "on the fly."

Tap out a key sequence, and you access a seven-item status line to change the transmission mode from half to full duplex or back again, or to use line or block transmission for compatible computers. At the same time, turn keyboard "clicks" on or off, switch between normal and reverse video, change the transmission speed or baud rate, reset the entire terminal, or jump into a 22-item menu for additional alterations. All without interrupting most processes in progress.

From the menu, keystrokes select one of five cursor styles, use or non-use of a status line, emulation choice, setup of the numeric keypad as a function pad, and many other features. Most character parameters, such as number of bits, stop bits, parity, and use or non-use of automatic line feeds are controlled from this menu. It also provides access to seven language fonts and a graphic font for special applications. The menu even allows selecting a transmission speed for a serial printer output port independent of computer-to-terminal communications.

There are far too many features to describe in a short article like this. As mentioned, there are multiple languages, with special characters for the United Kingdom, French, German, Swedish, Norwegian, Spanish, and Italian. Special keytops also are available from Ampex. Line and block graphics allow charts to be programmed and "boxed" on the screen. Depending on the emulation mode, methods of highlighting include full and half intensity (bright and dim), reverse video, underlining, flashing, and blanked fields.

Since all these are keyboard controlled, they are changed easily. Best of all, they're stored in nonvolatile memory, so the terminal powers up with the last selected parameters in effect. There's even an elapsed time indication on the status line to show how long the terminal has been switched on or to show the time of day. However, time of day is lost if power is interrupted, so it's one item that must be set at each session if it's to be used.

The detached keyboard features a conventional typewriter-style arrangement with a separate cursor control pad and a numeric accounting-style keypad. The numeric pad can provide control codes to the computer if so desired. Since control functions are in effect when the Shift key is used with the keypad, it's a dual-purpose pad for both control and numeric entry.

All in all, the D125 offers impressive capabilities. Yet there are a few problems. One is screen focus. Characters are presented in 6x10 dot patterns within a 7x12 field. That's certainly high enough resolution for either the green or amber screen models. However, several amber-screen units had to be rejected because of generally poor focus. Eventually, a sharp screen was found, but it took some doing.

Another possible problem is that nonvolatile memory is maintained by an internal battery. The manual says nothing about changing the battery, but it's not considered a user-serviceable item.

Documentation is extensive, with an 80 page manual provided. However, it isn't always easy to understand or follow. Furthermore, it contains some errors, particularly in defining control codes used in various emulation modes. In several places, the manual's tables do not correspond to the menu or status line displayed. Hence, it's necessary to experiment, learning exactly what codes and actions achieve desired results.

With the sole provision that buyers should check units for sharp focus before accepting delivery, I feel comfortable recommending this terminal for anyone who can make use of a free-standing video display and detached keyboard. The Ampex D125 looks and feels solid, and it performs admirably. It lives up to the manufacturer's claims and appears reliable.

Additional information about this $675.00 unit is available from Ampex Corporation, Memory Products Division, 200 North Nash Street, El Segundo, CA 90245, (213) 640-0150.

CMS MARKET COUNSELOR

Capital Management Systems Inc.
P.O. Box 11595, Denver, CO 80211

Reviewed by John Edwards

Let's face it, playing the stock market isn't a game for chickens. It takes a cold, calculating mind to know just when to buy or sell securities. In fact, one might say that it requires a computer-like mind.

Since few investors are blessed with the ability to crunch numbers like a computer, dozens of software publishers have developed investment programs for real computers. Everyone is getting into the act — from Dow Jones and Standard and Poor's to neighborhood whiz kids — and all promise systems with the special edge that will turn lackluster portfolios into gold mines.

One of the latest companies to enter this burgeoning field is Capital Management Systems Inc. Their CMS Market Counselor is an Apple II-based package that promises to provide users with a reliable market trend forecasting tool. The system requires at least 48K of random-access memory and one disk drive.

Like all stock market touts, Market Counselor has a "system" to offer its users. In this case, the system is the field of technical analysis. For those not familiar with the term, technical analysis is a method of predicting the future path of a stock by studying its history. By looking at the track record of a specific stock — or a related family of issues — an investor with a keen eye should be able to spot certain trends and be prepared to act upon them when the time is right. Technical analysis is a somewhat controversial way of picking stocks (as opposed to examining each company's balance sheets, earnings statements, and the like), but one with its share of proponents.

Unlike most other programs, Market Counselor takes a certain amount of discipline to use effectively. While the package comes equipped with historical data that is current to within two weeks of the purchase date, it's up to the user to keep this information up to date. In order to give Market Counselor the data that's necessary for accurate analyses, the user must provide the following daily information:

- Dow Jones 30 Industrials closing level
- Number of advances
- Number of declines
- Total share volume
- Total up volume
- Odd lot short sales
- Odd lot total sales
- Specialist short sales
- Total short sales
- Total up volume

It would be nice if Market Counselor offered a way to download this data from an on-line database, such as the Dow Jones News/Retrieval Service, but it doesn't. Each day's information must by entered by hand, and that means a lot of typing.

Once the user has assembled an up-to-date database, he can begin using the system to make market analyses. The important point to remember about this program is that it operates as an investment tool, not as a stock selection system. In other words, Market Counselor generates data that enables the investor to make certain judgments about the condition of the market. It will not, for example, tell the user: "Buy 50 shares of IBM" or "Sell AT&T." Actual buy/sell decisions still must be made by the investor. All that Market Counselor is, in essence, is another information source, like *The Wall Street Journal* or an investment newsletter.

Market Counselor's advice comes in the form of an extensive array of charts. Among the charts generated are an advance-decline ratio graph, an intermediate index, an overbought-oversold oscillator, a relative strength index, and a volume indicator. All of these charts and many others are used to analyze specific aspects of the market. For instance, the intermediate index can be used to determine the aggressiveness of buyers and sellers at any given time. Interpreting the chart's curve helps the investor judge whether a market is excessively bullish or bearish. Similarly, the advance-decline ratio graph can predict the course of the Dow Jones Industrial 30, alerting investors to changes in overall market trends.

Apple owners equipped with either an Apple Silentype printer or other graphics printer connected to a Grappler interface board can create hardcopy printouts of Market Counselor graphs. When tested on a system consisting of an Apple IIe, Okidata 82A printer, and Grappler Plus interface card, the printed charts were crisp, clean, and easy to study. Figures 1 and 2 show examples of charts printed on this system.

A highly-involved package like Market Counselor usually succeeds or fails in a direct ratio to the quality of its documentation. The reason for this is simple. Technical analysis is such a complicated discipline, it's impossible for the average user to get much out of this type of program without having some sort of help in interpreting the data. Unlike a word processing or accounting program where direct results are easy to see, the subtle data generated by a stock market analysis program takes a skilled eyed to interpret and use.

While Market Counselor's documentation won't take the place of a top-quality technical analysis handbook, it does give its readers enough material for an elementary schooling in the field. Written in a clear, concise style, the documentation plows through computer and stock market buzzwords, offering both basic guidance to novice investors and a memory refresher for more experienced traders. It also provides an excellent overview of the program and enables readers to get their systems up and running in short order. In a world of unreadable documentation, Market Counselor's user instructions look very nice indeed.

Whether Market Counselor is the right package for you will depend on how much faith you place in the field of technical analysis. Investors who believe that the course of individual securities can be predicted through historical study should find this system one of the best of its breed. If, however,

"TAKE US TO YOUR DATABANK!"

you follow a more conventional investment approach, Market Counselor probably won't be your cup of tea at all.

On the other hand, you might consider employing the stock selection system pioneered by *Forbes* magazine. Back in 1967 the editorial staff of that publication mounted *The New York Times'* stock pages on a wall and hurled 10 darts toward them. After investing a hypothetical $1,000 in each dart-selected security, the editors' "portfolio" had appreciated over 200 percent by 1982. Over the same period, Standard and Poor's 500 selected issues rose by just 35 percent.

Could an Apple do much worse?

REPORT MANAGER

Datamension Corp.
615 Academy Dr., Northbrook, IL 60062
List price $399

Reviewed by William J. Lynott

The great spreadsheet war continues, and Report Manager by Datamension Corp. is contributing nicely to the fireworks.

Report Manager, like so many of its counterparts, shows clear evidence of its VisiCalc heritage. All of the basic spreadsheet functions are there, along with a set of slash (/) commands that are mostly identical to those used in the granddaddy of all spreadsheets. As a result, anyone familiar with VisiCalc should be able to put Report Manager to work with a minimum of practice.

But RM is not just another VC clone. Along with many of the refinements so sorely needed in the original VisiCalc, RM introduces at least two major enhancements that really do add another dimension to the spreadsheet idea.

The first of these is dubbed "data cube" by the program's authors. Data cube is a unique feature that adds an astounding flexibility to the basic spreadsheet idea. It enables you to create "pages" of identical or different templates as part of the same file. The usual two-dimensional spreadsheet of horizontal rows and vertical columns thus becomes three-dimensional through the addition of pages.

Viewing perspective can be altered to be column-oriented, row-oriented, or page-oriented. One illustration of this idea would be a monthly sales report consisting of twelve months listed across row #1, and the names of salesmen listed down the left edge in column A. Each full year would be a separate page.

With simple commands, the screen can list the results for any given month (January, for example) for all years contained in the file. This would be column-oriented.

Or it could display the performance of any given salesman over the span of years in the file (row-oriented). Or it could display complete results for one full year at a time (page-oriented). Moving from one page to another within a file is smooth and fast.

RM also incorporates a feature called Exec Language. This BASIC-like programming language allows the user to create multiple screen programs that require user response. This opens the way to the creation of menu-like arrangements complete with prompts that can be used to allow persons other than the creator of a template to learn how to use it quickly and easily.

While putting Exec Language into practical use is going to require some study and practice time, it is similar enough to BASIC that anyone who already knows a little about BASIC programming will find it easy to learn. Report Manager also offers the full range of functions, such as absolute value, average, integer, look-up, etc., plus a couple of goodies that are fun to use.

The day-of-the-week calculator automatically converts a conventional month/day/year entry into the proper day of the week. While I'll admit that I haven't been able to think of a terribly practical use for this facility, it is fun to use.

Of more practical use is the help key (F1 on the IBM PC keyboard). Somehow, the help key manages to come up with a help menu directly related to the task at hand whenever it is pressed. Like all help menus or help keys, its value will diminish as the user develops more skill and experience with the program, but it is very helpful in the learning stages.

Report Manager's documentation is done in easy to read 8½ x 11 format, professionally illustrated and nicely bound and printed. The luster of all this is diminished a bit by too many minor typographical errors; most of which are only distracting, but several could cause a lot of wasted time. This should be attended to quickly.

As far as aesthetics are concerned, my own feeling is that the screen format of Report Manager is not as sharp and crisp as the familiar VisiCalc screen . . . too busy. One reason may be the three-digit row numbers (008, for example) that clutter up the left edge of the screen. I also feel that the failure to make use of the IBM's "home" key is an inconvenience. When working with any spreadsheet, it is often necessary to get quickly to the upper left corner, and there is no better way to do that than through the good old "one stroke" home key. And be advised that RM requires a lot of support. A minimum of 128K with two disk drives is specified.

When it's all added together, though, Report Manager is a super package. It would be difficult to imagine a spreadsheet function that RM could not handle.

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LEARNING WITH LOGO

by Daniel Watt
BYTE/McGraw-Hill
365 pages; $19.95 softcover

Reviewed by John Edwards

Ever notice how kids and computers seem to go together? While many normally reasonable adults cringe at the thought of placing a computer in their home, children just can't seem to keep their hands off of the things. I'm not quite sure why this is, but I suspect it has something to do with preconceived notions.

Until a few years ago the major barrier that prevented children from accessing computers was the lack of a suitable programming language. While FORTRAN may be fine for scientists, and COBOL great for business professionals, both are far too complicated for all but a few child prodigies to master. Even BASIC, with its many intricate twists and turns, is a bit too much for your average 10-year-old. Then came Logo.

For those of you not familiar with the word, Logo is a programming language aimed at computer novices. Unlike its more sophisticated counterparts, Logo places its stress on learning rather than doing. By introducing its users to the world of structured programming in a friendly, helpful manner, the language helps to smooth the way to conquering more complicated languages.

Daniel Watt's *Learning with Logo* is an all-purpose introduction to this versatile language. Designed for readers with little or no computer experience, the book focuses on the fundamentals of Logo programming through program-projects that reveal the powerful concepts stored within its command structure. It's not a primer on language design or educational philosophy — that information is available elsewhere. It is, however, an excellent learning tool for people who want to advance beyond the video game stage.

Written for both children and adults, *Learning with Logo* includes a wide range of useful programs that help keep young readers both interested and amused. The book's early chapters, written with 10- to 13-year-olds in mind, comprise an easy-to-follow guide to the Logo system. Topics include commands for the Logo "turtle" (an inexpensive tabletop robot) and instructions for writing new Logo commands. Later chapters explore more technical details and provide practical information on using various Logo packages.

Unlike many other computer books aimed at children, *Learning with Logo* never panders to its readers. Although written in a breezy and highly engaging style, the book still manages to introduce Logo's various rules and commands in a logical arrangement that keeps readers from becoming hopelessly confused — a problem that seems to afflict many other programming books written for beginners. On a practical note, the text's spiral binding helps keep the book open when entering programs or data.

While Logo packages are currently available for such computers as the Apple II, the Texas Instruments 99/4A, the Atari 400, 800 and 1200XL, the TRS-80 Color Computer, the Commodore 64, and the IBM PC, this book concentrates only on systems written for Apple and Texas Instruments computers. While it would have been nice if the text had provided some information for owners of the other machines, *Learning with Logo* remains a first-rate book. Any home equipped with a computer and a kid shouldn't be without it.

LEARNING TO USE THE IBM PERSONAL COMPUTER

by Kenniston W. Lord Jr.
QED Information Sciences
188 pages; $14.95

Reviewed by John Edwards

Set off the fireworks, light the cannons, here's another book about the IBM Personal Computer. You know, another breathless tome that promises to provide all the juicy details the system documentation left out. Excuse me while I take a nap.

Let's face it, most books of this kind are nothing more than a rehash of the computer's standard documentation with a few of the author's personal comments thrown in for ego gratification. While many of these books may be entertainingly-written, fully-illustrated and artfully packaged, the reader invariably comes away with a feeling of deja vu (haven't I read all of this someplace before?).

Fortunately, Kenniston W. Lord's *Learning How to Use the IBM Personal Computer* manages to gracefully avoid many of the pitfalls that plague its companions. While the book's early pages do feature the usual variety of redundant information (such as instructions on how to install the system, how to tilt the keyboard, where to find the on/off switch), by the time the reader approaches Chapter 5, some useful information is actually being dispensed.

Primarily geared toward business professionals, Lord's book is a tutorial that aims to give the first-time PC user a thorough grounding in the machine's operation. I particularly liked the step-by-step instructions that show the reader how the PC can solve a variety of business problems. Topics covered include accounts receivable and payable, management, inventory control, sales analysis, material planning, invoicing and scheduling, and planning. Another especially useful feature is the text's extensive index that allows readers to rapidly access information from the book in hand as well as from IBM's DOS Manual, Operations Guide and BASIC Manual.

The only place the book falls short is in the area of software — the information provided is sketchy and mentions few specific product names. While the topic may lie somewhat outside of the book's range, a brief discussion of available programs and operating systems, plus some advice on where to find additional information, would have rounded-out the book nicely. After all, this is a book for beginners, and software, besides accounting for 50 percent of any computer system, is often a difficult concept for novices to understand. The seven pages the author does provide on this subject just don't go far enough to help the reader. "Buy some books and study. Buy books of programs and try them," isn't the most helpful advice ever offered.

While most new PC owners will probably find *Learning to Use the IBM Personal Computer* an informative addition to their computer library, the book will most likely find its largest audience among prospective PC purchasers. For those still wondering whether IBM's machine is better than, say, Apple's or Radio Shack's products, Lord's work should go a long way to resolving many unanswered questions.

CABLEMANIA: The Cable Television Sourcebook

by James W. Roman
Prentice-Hall Inc.
278 pages; $9.95 softcover, $18.95 hardcover

Reviewed by Byron T. Scott

The worst thing about this book is its title. I can see the scene now: The assistant professor from New York's Hunter College (Roman) has written a neat little summary of CTV and its short history; having published, he will not perish this academic year. Now enters the Prentice-Hall marketing department with one of this year's buzz words: "mania." (This evening's paper has a local bakery trumpeting: "Muffin Mania!") Next time the prof will get a contract that allows him to pick the title.

The only other negative about Roman's sourcebook, which it truly is, comes from the fact that cable — while neither frenetic nor violent in its development — is still stepping along so rapidly as to outdate any book before the ink is dry. Cable is truly a candidate for an interactive database if you really intend to keep current. Lacking that, Roman's print-on-paper snapshot does pretty well.

Over a third of American households now boast coaxial communications, quite a penetration for a delivery system that sprang from the imaginations of frustrated TV salesmen in the mountains of Pennsylvania less than 35 years ago. Roman's abbreviated history of cable is informative and different from others in that it draws heavily on the memories of CTV pioneer Milton Shapp, who later became governor of Pennsylvania. The author's guided tour through the twisting, controversial and still-metamorphosing relationship between cable and the Federal Communications Commission also is interesting. (Could this be where the "mania" comes in?)

Perhaps the most valuable sections deal with public access. Almost all cable franchises have made some bow toward allowing open channels for community use. Roman's discussion of the ins-and-outs is detailed and hard-eyed, down to what it takes to put together a public access studio that really works. Anyone embroiled in public access efforts could benefit from these sections.

The sections on future technology, including videotex and teletext, are not so strong. They are sketchy and not entirely accurate. At one point, the Knight-Ridder Viewtron system is referred to as "a version of teletext." This must be careless editing, since Viewtron is correctly identified as videotex a score of pages later. Any reader who does not understand videotex/teletext would get little help from this book. It even gives the impression that most videotex systems are now carried on cable rather than telephone lines. This may be the case in the future, but certainly isn't now.

As a sourcebook, that is to say something that gets the reader into the topic and suggests further readings, Roman's book fulfills its promise. The bibliography, footnotes and tables are useful. The glossary is adequate, except for interactive communications, where it thins. The illustrations, provided apparently by PR offices of cable companies, are not informative, showing mostly logotypes and pictures of people smiling at their televisions.

Despite the marketing man's primary title, this book does not reflect the millions lost and won and political power struggles that have characterized cable's growth. Roman mentions many such incidents, but usually passes quickly on to the presentation of still more information.

Cablemania will not freeze you to your armchair, but it belongs on your bookshelf if you have an interest in this approach to telecommunications. In the near future, as Congress and the FCC race technology to who knows where, the book's staying power may be as history. As Roman himself states, in cable there is no such thing as status quo.

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PLEASE

VM Personal Computing has introduced a new software package called PLEASE that offers more than mere good manners. PLEASE allows flawless transmission of data files between the IBM-PC and any VM/CMS mainframe system.

Used in conjunction with IBM PCs running VMPC's RELAY communications software package, PLEASE allows uploading and downloading of any format data over normal asynchronous telephone lines with full error detection and correction in both directions.

Unlike existing micro-mainframe packages, PLEASE can accommodate either text or data files of any length or format, whether they are micro-based, such as VisiCalc spreadsheets or WordStar documents, or mainframe-based, such as source programs, systems files or modules.

PLEASE ensures accurate transmission of all files even if they include control characters or binary data. It automatically handles character translations between the PC and the mainframe.

The software is distributed on a 5¼-inch floppy disk or magnetic tape, and there is no need for additional hardware devices or protocol converters. Two versions of the PLEASE package are currently available: "Personal PLEASE" supports a single copy of RELAY and retails for $99; "Corporate PLEASE," designed for the business environment, supports multiple copies of RELAY and retails for $1,495.

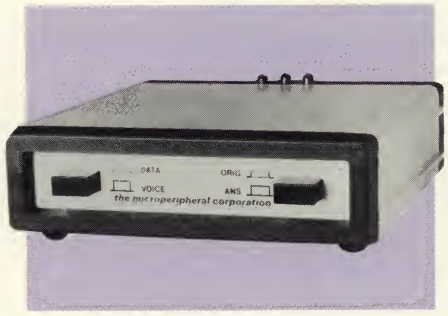
For information, contact VM Personal Computing Inc., 60 E. 42nd St., New York, NY 10165. (800) 847-3529.

CASH CALL

Fewer casino patrons, travelers and hotel guests will find themselves "tapped out" now that Cash Call, an electronics funds transfer service, has been teamed with an Okidata Microline printer to generate on-the-spot personal checks.

Cash Call enables individuals to receive instant cash by merely presenting their VISA or MasterCard. The cashier simply phones the system's computerized switching network in Dallas, and a Tandem Non-Stop II computer automatically calls the credit card company to receive authorization for disbursement. It then instructs the business' on-site Okidata Microline printer to draft a check in the requested amount. The entire sequence takes just a few minutes.

For information, contact Okidata Corp., 111 Gaither Dr., Mt. Laurel, NJ 08054. (609) 235-2600.



AUTOPRINT MICROCONNECTION

The Microperipheral Corp. has released a low cost modem for the VIC-20, Commodore 64 and Atari computers. The unit features both an auto-dial and auto-answer capability. In addition, it has a built-in Centronics compatible parallel printer port.

The new product, called an Auto-Print Microconnection, retails for $149.95 and is enclosed in a professional quality extruded aluminum case. It operates at 300 baud in either originate or answer mode and is FCC Type Accepted. The combination modem and printer interface plugs directly into the computer without the need for additional interface devices. Telecommunications software is provided in the user manual.

For information, contact The Microperipheral Corp., 2565 152nd Ave., N.E., Redmond, WA 98052. (206) 881-7544.

DATA-DUBLER

Data-Dubler, a new program from Comp-Fidence Mfg., modifies existing and new floppy disks so they are able to store twice as much data as they normally do. The Data-Dubler works with any single-sided 5¼-inch disk drive, regardless of density.

A complete kit, which includes simple tools and illustrated instructions, retails for $19.95. Documentation only sells for $9.95. For information, contact Comp-Fidence Mfg., Box 14, Moraga, CA 94556. (415) 376-3003.

Industry Watch

NEW FROM AUTOMATIC MICRO

Virtually every electrical device in the home can now be given affordable centralized computer control through the new BSR/RS-232 compatible AC-100 Home Commander developed by Automatic Micro Inc.

The unique design of the Home Commander allows you to pre-program the unit for stand-alone control of lights, appliances, TV, stereo or almost anything that plugs into your home electrical system. Once it has been programmed through the RS-232 interface on your personal computer or terminal, it can operate on its own leaving your equipment free to perform normal functions. An internal RAM and real-time clock make possible the stand-alone operation of the Home Commander.

Control of up to 256 electrical devices equiped with BSR home control modules is possible through the AC-100 Home Commander. The Home Commander sends instructions over the AC house wiring to BSR modules controlling appliances, lighting, etc., throughout the home. This means the Home Commander is easy to install since it requires no extra wiring.

The Home Commander receives its instruction through text commands that can be issued from a simple BASIC program. You can select when devices should go on or off and even vary the brightness level of any light. The possibilities are limitless: Set the bedroom light to come on dim, heat up electric rollers in the bathroom and start the coffee brewing in the kitchen all at wake up time. Other appropriate control functions can be performed automatically throughout the day. Program control examples and complete instructions are included in the AC-100 Home Commander package. The unit retails for $195.

For information, contact Automatic Micro Inc., P.O. Box 20007, Columbus, OH 43220, (614) 766-0670.

DEC RAINBOW SOFTWARE

A low cost line of language, word processing, utility and entertainment software is now available for the DEC Rainbow and VT-180 computers.

The new software is produced by The Software Toolworks. Word processing software includes the TEXT formatter, the SPELL 50,000 word proofreader and the AUTODIFF file comparison program. Also available are a file compression and encryption program as well as a full screen disk patch and dump utility.

Software development tools include the C/80, RATFOR and LISP/80 languages, and Z80 and 8080 macro assemblers.

The software packages retail for $20 to $50 each and are available through dealers or direct from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, CA 91403. (213) 986-4885.

TUTORIALS FROM WORDCRAFT

Learning to use a new computer system can be tricky and at times complicated. Wordcraft has taken some of the confusion out of learning the intricacies of CP/M based computers.

I Can Use My Computer! is a package of cassette recordings that take the new CP/M or CP/M-86 computer owner on a complete solo flight. The tape gives step-by-step instructions, describes the screen and recovers from common errors. The user handles diskettes, learns CP/M commands and manipulates files.

Hands-on experience with WordStar, SuperCalc and BASIC is also included. There are no manuals to hunt through and no expensive classes, since everything is supplied on two C-90 cassettes that retail for $24.95.

For information, contact Wordcraft, 3827 Penniman Ave., Oakland, CA 94619. (415) 534-2212.

6.0 PLUS FROM MICRO-SYSTEMS

A series of BASIC and DOS enhancements for the TRS-80 Model 4 has been produced by Micro-Systems Software Inc. The package allows the TRSDOS owner/user to have some of the powerful utilities of DOSPLUS IV without having to purchase an entire operating system.

Called 6.0 Plus, the product includes a full range of disk management programs including a disk editor, a file editor and a directory verification/repair utilitiy. The BASIC enhancements provide shorthand immediate commands and abbreviated statements to make programming chores easier. They come in both internal and external forms. External programs include a multi-array machine language sort, comprehensive cross-referencer and a global search and replace utility for BASIC text. Internal enhancements include label addressing, extended error messages and an expanded OPTION command.

6.O Plus retails for $49.95. For information, contact Micro-Systems Software Inc., 4301-18 Oak Circle, Boca Raton, FL 33431. (800) 327-8724. In Florida, call (305) 983-3390.

A ONCE AND FUTURE CRAFT

V.R. was a city editor whose typewriter was an instrument of revenge. Long ago he had come to a grudging understanding with himself that his body was unsuited for anything requiring agility.

Only at the keyboard of his old Royal standard did V.R. pirouette with grace.

The way V.R. hit the keys was downright punitive. On a good day the floor around V.R.'s desk was littered with little white dots — the o's and e's that fell out in a shower when he pulled pages from his machine.

V.R. took pride in that pile of zeros left as a daily testimony that work had been done. It was like a good carpenter leaving piles of wood shavings around the floor of a new house.

He didn't have much patience with those who thought of writing as an art. He believed most of us who write are craftsmen, hammering the words together.

I remember telling him once that novelist J.D. Salinger was known to spend all day looking for the "right word." V.R. gave me the kind of look that Grandpa Bowen, a house carpenter all his life, might have if I had suggested that a day could be spent choosing nails.

V.R. was one of the old-timers who passed from the newsrooms just before the VDTs arrived. The years after his retirement were none too gracious. Like many old news hounds, he returned to the newsroom from time to time. Looking around at the terminals, he would grunt and say, "Looks like a damn insurance office."

"Word processing," then, is a phrase that wouldn't have come trippingly to V.R.'s tongue.

And, just as he was wary of the suggestion that writers regularly consorted with muses, he would have scoffed at the notion that fundamentals of his craft could be incorporated into a "system" — that a machine could somehow help an editor.

I think V.R. was like many writers and other professionals and executives today who look warily at desktop computers. I don't think they fear them, despite what the psychiatrists are telling us. I think that deep down they're a little insulted that anyone would suggest their way of doing the job could be improved — and by a machine.

The problem is not the machine, I think, but rather the words we use to introduce man to machine. The industry reports on word processors are filled with terms that are precise enough but mean absolutely nothing to people who pride themselves on knowing how to use words.

However, I think the most skeptical writers — the ones that have the hardest questions — are often the ones who make the best use of microcomputers once they take one of the little buggers into their lives.

V.R. would have liked word processing.

I like that kind of speculation because it can't be proved, but I think there is justification for it because a "system" for writing and editing existed long before microcomputers. It was a process to which paper-in-typewriter was only the first step, followed resolutely by pencils, scissors, glue pots and variable amounts of caffeine and nicotine.

Like any good editor, V.R.'s system existed quite apart from any computer or program, and if he had had the opportunity, V.R. would have used a computer, I believe, to enhance the system he already had.

I've worked around newsrooms for more than 16 years now, and I've seen good writers come to tears, to blows and even to early retirement over the arrival of the computers.

I've also noticed an irony. On the one hand, the writers who make the easiest transition to what newspapers like to call The New Technology are usually those who have a clear view of the writing process — that there's more to writing than typing.

For them, word processors can be a godsend to lessen the drudgery and leave more time for the really hard part of writing — the thinking part.

But, more often than not, the best writer in the building is the most reluctant to accept a word processor as a tool.

He gets angry at the arguments of the boss or the computer salesman that writers have been using machines since they learned to type.

And complicating the matter is that the computer industry is just learning how to talk to many professionals and executives, and it has a hard row to hoe when dealing with an obstinate bunch of writers.

Recently a friend told me that all three of his manual typewriters had bitten the dust, and he was thinking of buying one of these new electronic typewriters. When he told me the kind of money he expected to spend, I said, "Gee, for a little more you could buy a complete micro and a good word processor."

He turned the color of good 20-pound weight Southworth Bond paper. Then, collecting himself, he sneered, "I thought 'processing' was what you did to cheese . . ."

"I don't like computers," he said wearily, as if he had had this conversation before, or had at least rehearsed it.

My friend had virtually no exposure to microcomputers, so I took his crack to be simple prejudice and started to say something about his being a "techno-bigot." But something about the look on his face stopped me. There was a kind of desperation there — a look you see in the faces of many people these days, of conflicting fears, of either being left behind by a rushing technology, or stopping and being swallowed up by it.

So I held my tongue and followed him to his office where he described a newspaper ad he'd seen for one of the new dedicated word processing machines. According to my friend, the ad boasted that the machine was "Fast! Efficient! Easy!" And to demonstrate just how easy, a child was shown sitting at the keyboard.

"Who are these guys trying to sell to?" he said. "Surely, not me.

"Anybody who promises to make

COMING IN THE NOVEMBER ISSUE OF TODAY

Videotex Standards: Conformity or Chaos?
Next month TODAY will take a look at the videotex industry's attempt to bring some semblance of order to the hundreds of different methods of navigating videotex and database systems. Find out what efforts are being made by videotex service providers to standardize the fledgling industry and how it all affects you — the consumer.

On-Line Information Retrieval: Part II
Once you become interested enough in on-line information retrieval to begin seriously investigating it, the first thing you are likely to experience is "overload." There are more than 2,500 information providers offering a variety of databases ranging from simple directories to heavily cross-referenced indexes of the entire world's technical literature. In the second part of a three-part series on on-line information retrieval by Steven K. Roberts, TODAY examines many of these available sources and how you can begin fitting them to your individual needs.

Gift Giving in the Information Age
Wondering what to give the computerist in your life who has everything? TODAY presents a "catalog" of practical and some not-so-practical items for yourself or that special computerist you know.

me write 'faster' is either lying or insulting. I've wanted many things in my life but to write faster is not even on the list. Better maybe, but not necessarily 'faster.' " I thought of V.R. polishing his prose. If anything, he had taken pride in lengthening the writing process, not speeding it up. I knew that the ad didn't mean that the machine could make the writing faster, but rather that it executed its business quickly. But my friend, who has never spent a weekend with a micro, didn't make that connection, and we shouldn't expect him to.

"And," he continued, "how in the name of Thomas Wolfe is any machine going to make me write more 'efficiently?' I don't even know what that word means in terms of writing.

"And finally," he said with a tight little smile, "show me a guy with a machine that can make writing 'easier,' and I'll show you a guy who sells left-handed cigars."

On my way back to my desk (I left before he could tell me what he thought about the kid at the keyboard), I was thinking of the pile of white dots around V.R.'s desk at the end of the day. No, "easy" was not the word most writers looked for.

I know many good reasons for a writer to take the plunge and start using a word processor. I'm a kind of hybrid — a writer who came to computers out of a curiosity about programming and telecommunications. Only relatively recently did I start using my microcomputer for writing, but now I write with it every day. I wouldn't go back to my typewriter for love nor royalties.

But when I try to explain to other writers why I love my micro, I often run into a language problem. The words to describe the real advantages often simply haven't evolved into laymen's terms.

Beyond the jargon, the biggest problem I've had in convincing fellow writers to try word processing is getting across the idea of how limited paper is for storing information. It's cumbersome, not easily duplicated and vulnerable to everything from a cigarette ash to a strong wind.

By contrast, writing prepared on a computer and saved to disk is flexible and easily copied. And, when word processing is linked with a database service like CompuServe, it's completely portable.

For instance, this column was written while I was on vacation and stored at various stages of its development in my file area in the TODAY Writers' Network on CompuServe. Part of it was even written on a portable computer while I sat on top of a hillside on a Saturday morning amid the buzz of June bugs and the scent of honeysuckle.

Anywhere I traveled during my vacation, I could dial the telephone, download the latest copy of this column from the place I had stored it in CompuServe, work on it and then upload the new version to the system again for safe keeping.

No matter where I was, I was confident that the latest version of my project was a phone call away. This kind of writing is so portable, so flexible, so, uh . . . efficient.

INFORMATION RETRIEVAL

Continued from page 20

fight. You can expect some extended legal battles, including lawsuits about restraint of trade, monopolistic practices, and labor disputes. Also, sticky copyright issues are beginning to surface, with no one in the industry sure of the best way to control ownership and reproduction of information once it is in machine-readable form.

With these events occurring, something that is still a rather obscure phenomenon for the average citizen is likely to become a major social issue. Who controls information? When on-line services penetrate the home, how will they compete with newspapers and magazines? How will the existing network of authors, publishers, wholesalers, distributors, and readers deal with an unprecedented reduction in the volume of print media?

One thing is certain: On-line information retrieval is on the rise. Everything is increasing — the number of databases, the number of terminals, the number of users, the number of searches performed, the revenues, and even the number of mergers and acquisitions in the on-line field. Information is easily available from sources once obscure; the *Bangladesh Journal of Scientific and Industrial Research* can appear in your search results right next to *Scientific American*. The small business operator no longer struggles under the information disadvantage that has handicapped him in the past — if anything, he is more likely than his Fortune 500 competition to stay current with the applicable trends and technologies. National borders mean less and less, and it is more dangerous than ever before to assume that your current technological advantage in the market is likely to continue without ongoing effort. The number of secrets you can keep about your business is decreasing — but at the same time, you can keep your eye on the competition better than ever before. These trends will continue and should be woven into an intelligent business plan in the 1980s.

Next month, we consider the smorgasbord of services that are available in the on-line world — from ABI/INFORM to the Zoological Record.

Steve Roberts is a Columbus-based free-lance writer and consultant who has written extensively about on-line information retrieval, microcomputer design, and artificial intelligence. He is currently working on his fourth book (Garland Publishing Co.) Roberts' CompuServe User ID is 70007,362.

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APT VP4801

The new RCA APT (All Purpose Terminal) expands your data communications capabilities for a lot less money.

For business, professional and personal data communications, you'll find more user-friendly features and greater communications capabilities in the RCA APT than in other terminals selling for up to three times the price.

The new APT terminals are ideally suited to multi-data base time sharing and dedicated, direct computer-connected applications. They feature menu-controlled operation and a programmable "personality" to match specific communications requirements for your data bases.

A single keypress can dial a stored number, send the log-on sequence to the host computer, and return terminal control to the user. Password protection prevents unauthorized access to designated numbers. APT can also be used as an auto-dialer for voice communications.

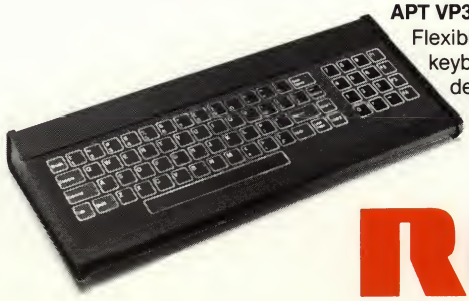
Quite simply, matching features with price, there is no other professional quality terminal available today that can do as much at such low cost.

APT terminals list for $399, in your choice of full stroke or membrane keyboard versions. Either style is also available with a display monitor for $598 list. The data display monitor alone, VP3012D, $229 list.

For more information—or to order—call 800-233-0094. In Penna., call collect to 717-393-0446. Or write for fully descriptive brochure to RCA MicroComputer Products, New Holland Avenue, Lancaster, PA 17604. OEM and dealer pricing available. The new RCA APT. Expansive. Not expensive.

OTHER FEATURES

RS232C port for direct computer connections at data rates to 9600 baud, or for connecting high speed modems and other accessories. Parallel printer port for hard copy. Numeric keypad, can dial phone numbers not in terminal directory. Built-in speaker with adjustable volume control for audio monitoring of phone line. Smooth scroll display. Automatic screen blanking to reduce possibility of burn. Briefcase size: 17" x 7" x 2". Weight: under 4 lbs.



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